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BETTER FRUIT

The Pioneer Horticultural Journal of the Pacific Northwest

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Features In This Issue:

Efficient Boxing of Fruit
Apple Packing Chart and Rules
Selling the Boxed Apple Abroad
Cheap Ventilated Storage Cellar
Grower's Share from Car of Apples
Fruit Standardization and Inspection
Checking Apple Deliveries by Weight



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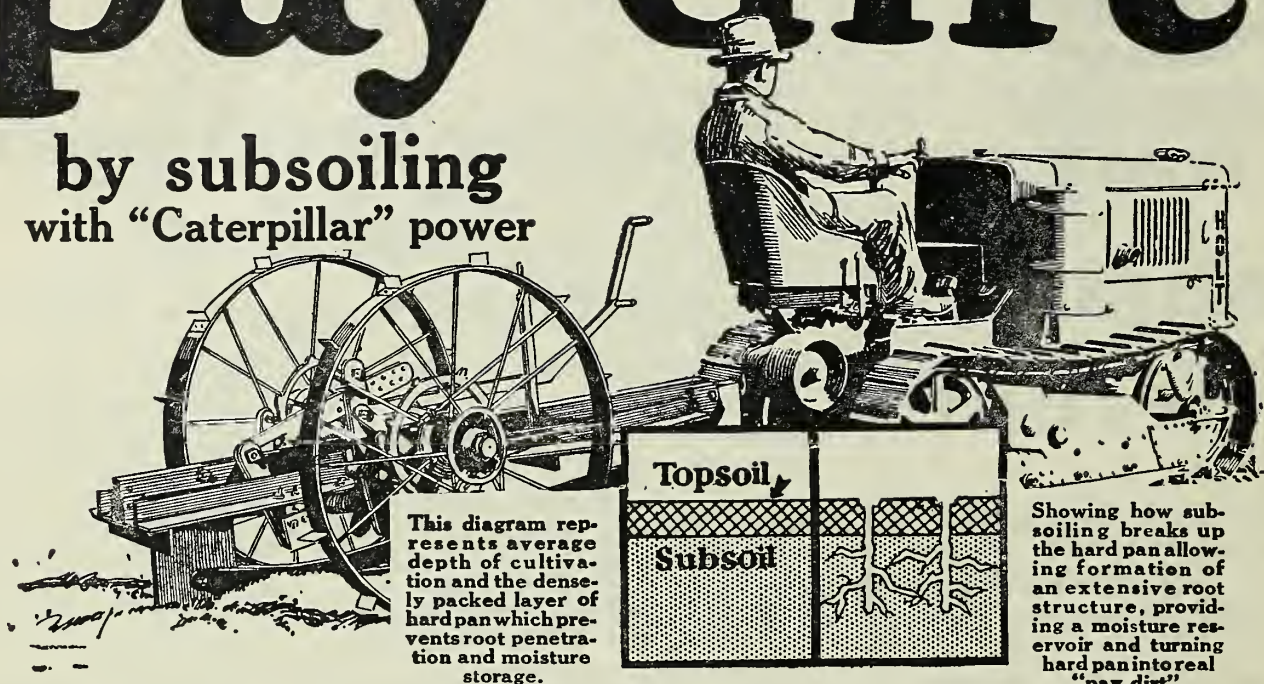
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BETTER FRUIT

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Selling the Boxed Apple Abroad

By ARTHUR M. GEARY

FOREIGN markets for the consumption of our fruits, which have furnished a safety valve in the past, are becoming of increasing importance each year to the prosperity of the orchard

districts of Oregon, Idaho and Washington. There were 43,000 cars of box apples raised in the Pacific northwest last year, which was 18,000 cars more than the preceding year, and the peak of production has not been reached yet.

Short crops in other parts of the United States last season enabled the apple shippers to obtain a fairly satisfac-

tory price for their crop. This year there is to be an equally large crop in the Pacific northwest with much heavier production in the other orchard districts of this country. This year the apple shippers could use to advantage a much greater foreign outlet than appears to be in prospect.

The apple growers of the Pacific northwest have achieved perhaps more than any other group of producers in that the product of their orchards, after being picked, graded, packed and shipped, excels in world-wide competition in all markets. The Australian and New Zealand apples are inferior in quality and are not packed and graded with the same skill or in as neat packages as are the apples from the Pacific northwest. The apples grown in Europe, as a rule, are not packed in boxes, but in barrels.

The only worthy competitor in Europe with the northwest box apple is the yellow apple grown in the Tyrol known as the Calville. This apple is packed in wood flour and paper somewhat similarly to the manner in which the South African peaches which are found in London and New York are packed. The cost of

the fancy treatment of the Calville apple places it in the luxury class far out of reach of all but a very few.

But the fine quality, grading and packing of the apples of the Pacific northwest will deteriorate in the future unless favorable markets are within reach, where the fruit can be marketed at a profit.

I stood once upon the levees of the Mississippi at New Orleans with the late Simon Segari who, for a generation past, had marketed large quantities of fruits that had come down the Mississippi river to New Orleans as well as by rail and ocean steamer. He told of Bartlett pear districts that had arisen in the Ohio valley and where cherries, peaches or plums had been grown to perfection, and how lack of profitable markets had the invariable result that the orchards would be allowed to deteriorate, and become infected, and that step by step a whole district would go backwards until it was simply a memory.

Mr. Geary, who has made it his business to learn all angles of the fruit marketing problem, only recently returned from an extended tour of investigation which included England and other European countries. He ferreted out some of the obstacles which make it difficult to extend our boxed apple markets across the Atlantic. They are not at all insurmountable. In fact some of them are already seemingly as good as eliminated. The article concludes with pointers on advantages of water transportation in moving apples to the Atlantic coast.

Through advertising and development of market machinery considerable success has been attained already in extending the distribution of boxed apples of the northwest throughout the United States and Canada. The freight rates that must be paid by the apple growers of the Pacific northwest to the markets along the Atlantic coast of the United States

places the orchardists here under a great initial handicap in competing with the orchards of New York State, Maryland, Kentucky and Virginia.

The difference in freight rates, when capitalized, amounts to \$2000 an acre on a heavy bearing orchard. In other words, if the only market available to an orchardist in Wenatchee were New York City, under present transportation rates by rail, his orchard would have to pay interest upon \$2000 per car as his share of operation, overhead and other capital investment of the railroads of the country.

By developing the markets throughout the west, south and middle west, the apple shippers of the northwest have minimized their handicap that lies in being so far distant from consuming centers. By shipping only the fine grade apples they continue in a class by themselves in the home markets.

But the time has come when their attention must be directed across the seas and not along the routes that combine rail and ocean shipment, but over the cheaper, safer routes of all-water shipment. Apples and, for that matter, other fruits, unless dried or canned cannot be shipped with success through the torrid zone except in dry, cold-air refrigerated chambers. Until the meat trade developed with the Argentine coast, causing the Van Dyke and other ships to be built with refrigerated space for the transportation of the meats of the River Plate to New York, which was in 1907, the boxed apples that found their way into Brazil and the Argentine were routed via London, going from London in the coffee ships to the ports in South America. The first apples to be shipped direct were sent there in the same holds that had brought meat north.

THE present situation as regards available tonnage for the transportation of apples and other fruits from the Pacific northwest to Europe is satisfactory from the shipper's viewpoint. Due to the dullness of the meat trade, many refrigerated ships are found tied up at the



piers in the Clyde, the Mersey and the Thames. I counted six refrigerated ships within view at one point in the River Mersey.

Many of these ships are improperly equipped for the transportation of apples as few have white brine refrigeration throughout their holds and do not have sufficient ventilation. This condition results in apples, eggs, pears, or any commodity that requires dry, cold air at temperatures above freezing, arriving in a damaged condition. I saw a whole cargo of Australian apples come from one of these vessels with improper refrigeration and as soon as the warm sun had played upon them for a few hours they were oozing moisture and appearing in an almost unsaleable condition. Alongside was a ship with the proper kind of dry cold-air refrigeration and the apples unloaded from this ship were in an entirely different condition.

The actual transportation of the fruit from Portland or Seattle to Glasgow, Liverpool, Southampton, Hamburg or Copenhagen is not the only portion of the journey from tree to foreign consumer that requires proper equipment and careful attention. Seattle has splendidly equipped cold storage accommodations at shipside, and the Port of Portland has promised cold storage space at Terminal No. 4. Unless apples and pears are handled with dispatch from tree to the cold storage, and unless the cold storage temperatures are maintained throughout the transportation, the variation of temperature results in destruction of cell structure with more or less deterioration in keeping quality and in flavor.

But it is futile for the shippers of the Northwest to handle the fruit with care from the orchard to the packing plant and from the packing plant to the shipside, and for the ports of Seattle and Portland to provide the proper kind of cold storage space, and for the steamship companies with dry, cold-air refrigerated chambers to transport overseas this fruit with great care, if, upon arriving at these foreign ports, the fruit is allowed to lie for long periods of time upon exposed piers without proper protection from the elements.

In order properly to protect the fruit shippers it was necessary to find independent, honest inspectors in each of the large ports of Great Britain, Denmark, and Germany, where the apples are unloaded. An honest receiver cannot object to having the co-operation of these inspectors in checking up upon the fruit at the time it is discharged from the steamships. It is planned to put thermographs in the holds of these ships that carry fruit out of the ports of Seattle and Portland at the time the fruit is loaded, and to have these thermographs taken out at the ports in Europe by these inspectors. These thermographs, when they are taken from

the hold, will have registered the variation of temperatures throughout the voyage.

THIS system of inspectors will win co-operation of insurance underwriters so as to tend to keep down the insurance rates. While I was in England the premium for the form of insurance policy used by the Australian shippers jumped from 3 per cent to 15½ per cent because of the terrific losses that were taking place from the unsaleable condition in which the fruit from Australia was arriving. There was a general passing of the buck as to who was responsible for the destruction of the cargoes of Australian apples. Some maintained that disease in the fruit was the cause, others that the steamship company had frozen the fruit in transit. There were many thousands of boxes which I saw left on the Royal Albert Dock for several days over the Whitsun holidays, in sheds without ventilation and with the sun beating down through the low roof and skylight. Taking fruit and apples out of cold storage and leaving them exposed for several days to the summer heat was enough in itself to injure the fruit greatly.

Upon calling on one of the receivers he was found writing letters to the growers and shippers in Australia to the effect that, considering the wasted condition in which the fruit had arrived, he was glad to be able to obtain sufficient for the fruit to pay freight charges. There was nothing in his letter concerning his own neglect. This general passing of the buck back and forth will be prevented by the proposed inspectors and the shipper and the grower will be able to know who is the responsible party. Where there is this opportunity of placing the responsibility there will be, naturally, a greater effort all along the line to protect and safeguard the interests of the shippers.

There are one or two ports in Europe where our apples are now being marketed that have cold storage space at shipside. The space at London owned by the Port of London authorities is monopolized for the use of meats and eggs. At Liverpool alone is there at shipside large available dry, cold air space for the storage of boxed apples.

The result has been that this lack of cold storage space in Europe has caused the well established custom of selling fruits as they arrive, ex-dock, notwithstanding whether or not the market is flooded.

There is a movement on foot to endeavor to use the cold storage space available in Liverpool and to gradually develop a system of distribution in Europe that will be merchandising rather than dumping.

Development of the foreign markets that are now available and the finding of

new foreign markets are some things that the shippers of the Pacific northwest must take a vital interest in if the industry is to have continued prosperity.

The foreign dealer is interested in making a profit out of the fruit that he handles. He will handle South African fruit, Australian fruit, French fruit, or any kind of fruit for which there is a present demand and a quick turn-over. He does not have the same incentive to push the sale of any particular kind of fruit and, accordingly, plans for advertising, for more economic and systematic distribution in foreign markets must come from the producers and shippers of the Pacific Northwest.

The transportation problem is a primary one in the development of new foreign markets for the disposing of fruits from the orchards of the Northwest.

There could be a great saving in the development of transportation of apples by shipping through the Panama canal to the Atlantic coast of the United States, but there are practically no properly equipped ships available.

W. J. LOVE, director of traffic of the United States Shipping Board, states that there are nine refrigerator ships belonging to the United States Shipping Corporation, but that these are not equipped with cold dry air refrigerator machinery and are also too slow for the apple trade. Several millions of dollars are paid out each year by the railroads to fruit shippers in payment of claims placed by shippers for damage arising from freezing or overheating. There are several thousand men employed by the railroads in their claim departments for perishables. But all this expense in salaries and claims does not approach the sum actually lost by the shippers. Fruit apparently all right, upon being nipped with frost, never has the same flavor, all of which results in the curtailing of consumption and the reduction of price.

With the proper kind of dry, cold-air refrigerated ships plying from the Pacific coast to the Atlantic coast there would be an assurance that the fruit would arrive not simply apparently all right, but actually in the same condition in which it was shipped. There need not be a variation of more than one or two degrees on the whole voyage. F. o. b. buyers up and down the Atlantic coast would be able to save money upon purchases bought and transported via the canal and would also have the assurance that the purchases would arrive in A-1 condition.

There are government piers available at Norfolk which could be had for a nominal sum from which cars can be lightered to Cape Charles and from there dispatched inland over the Pennsylvania Line.

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Checking Apple Deliveries by Weight

By J. H. CONN and A. V. SWARTHOUT

Specialists in Market Business Practice, U. S. Department of Agriculture

THROUGHOUT the Pacific Northwest community packing of apples is rapidly growing in popularity. This service is performed in thoroughly modern packing houses equipped with up-to-date machinery and labor-saving devices, and the packing room is separate from that used for storage or other purposes.

It is the usual custom to pack the fruit of each grower separately and to record the results of the "pack-out" to the credit of the growers' accounts. It is imperative, therefore, that the identity of the ownership of the fruit be maintained on the warehouse floor until a complete tally has been made of the various grades and sizes, and the proper credit has been entered on the growers' accounts. Such a plan necessitates a very carefully devised system of warehouse floor checking as a safeguard against confusing the ownership of the fruit prior to its being packed. This is particularly true during a season in which the tonnage is extremely heavy and the loose fruit storage space is limited. During the rush of business in the fall of the year, shippers are often compelled to pile fruit to the ceiling in their efforts to provide storage space for all deliveries and still retain the identity of each grower's fruit until it is properly recorded.

Within recent years several fruit-shipping organizations have adopted a system of sampling apples by weight. This system is unique in the scheme employed to establish a record of the various grades and sizes of apples packed for each grower. The aim of this method is to accelerate the movement of the fruit through the packing rooms and to avoid the expense of repiling and checking that so frequently arises in attempting to retain the identity of each grower's lot of loose fruit on the packing-house floor. A sample is selected from each lot of fruit received. This sample is graded and sized, and a record made of the weight of each grade and size in the sample. The percentage relation of the total weight of the sample to the total weight of the lot is then applied to ascertain the weights of the various grades and sizes that make up the load, and the grower is given credit for the total weight, classified as to grades and sizes.

Accounting forms have been devised for use in community packing houses operating in the usual way. A complete description of those forms may be found in United States Department of Agriculture Bulletin 590, *A System of Accounting for Fruit-Shipping Organizations*.

Ample provision has been made in them for the adequate handling of the business performed by most of the fruit-shipping institutions. However, with the introduction of the sample test plan as a means of determining the various grades and sizes packed for each grower's account, a condition has been created which is entirely different from that existing in other organizations. For this reason special forms are required. Description of these, together with supplemental information on the whole subject, is contained in Department Bulletin No. 1006.

METHOD OF OPERATION—Fruit is delivered to the community packing houses in open boxes without being sorted into grades or sizes. As each lot is unloaded, a loose fruit receipt is made out in triplicate. The original is given to the grower as evidence of the delivery of the fruit, the duplicate (tissue) copy is sent to the office for filing, and the triplicate (cardboard) copy is attached to one of the boxes of each sample by means of a small tin holder and serves as a means of identifying the sample in the test room. The office copy of each loose-fruit receipt is held in a temporary file awaiting the receipt of the triplicate cardboard copy used to identify the samples.

It is advisable to check over the numerical order of the receipts turned into the office each day by the sample clerk to be sure that none are missing. This is a very important practice and should be enforced rigidly as protection for the grower's account. To facilitate posting, receipts are then arranged alphabetically, according to growers' names. By referring to the temporary file, it is possible to determine at any time the quantity of fruit remaining in the sample room to be tested and also to determine the length of time samples are held before being tested.

The number of boxes selected as a sample from each load varies with the size of the load. It is usual to set aside one box in every 20 (about five per cent) as a fair test of each load of fruit delivered. No fixed quantity is required, as it is generally felt that, regardless of the size of the sample, an accurate test will be obtained. After attaching the triplicate of the loose fruit receipt to one box of the sample, it is trucked into the test room, and the remainder of the load is stacked with the unpacked fruit of the same variety.

SORTING AND RECORDING—All results obtained by the test clerk in determining the net weights of each grade and size group contained in any one

sample are recorded on the duplicate copy of the sampled-fruit receipt. From the triplicate of the loose-fruit receipt the net weight of the fruit, including the boxes, is transcribed on the sampled-fruit receipt. The weights of the various grades and sizes contained in the sample are recorded on the sampled-fruit receipt under the caption, Test Weights. These figures are then checked daily in the office as a safeguard against errors. To accelerate the sampling work, the test clerk records only the weights of each lot without working out any percentage figures. Several samples belonging to a grower are often combined and one test to grades and sizes.

made of the combined lots, especially when the tests are small. At the close of each day all sampled-fruit receipts are sent to the office to be entered on the growers' accounts.

The work of ascertaining the net weights of each grade and size group must be very accurate and painstaking. To facilitate matters, the scales used in the sampling operations are fitted with beams giving the readings in pounds and decimal parts instead of ounces. The grading of samples is usually performed on a small model of the machines used in the general packing room.

As each day's sampled-fruit receipts are received in the office, the numbers are checked consecutively and a comparison made with the loose-fruit receipts held in the temporary file. The checking of the test clerks' computations on the duplicate copy of the sampled-fruit receipt is worthy of special emphasis and should be carefully performed. The percentage of test and the total weights of each grade and size group depend upon the accuracy of the test clerk's computations.

The following items on the duplicate sampled-fruit receipt should be carefully checked against like items appearing on the loose fruit receipt: (a) net weight of fruit, boxes included and (b) number of boxes containing fruit.

The following computations made by the test clerk and entered on the duplicate sampled-fruit receipt should be carefully checked:

1. Net weight of boxes delivered containing fruit (number of boxes times the arbitrary net weight of each box).
2. Net weight of fruit delivered (net weight of fruit, including boxes minus weight of boxes).
3. Net weight of each tested lot appearing under the caption, Test Weights,

(Continued on page 26)

Grower's Share from Car of Apples

WHO gets the proceeds from a car of apples?

The answer to this question is not always easily given. Correctly detailed it yields material for an interesting study. In what follows is presented the history of a car of apples sent from Underwood, Wash., last fall and sold through a prominent and favorably known commission firm in New York.

The history of this sale shows that the 798 boxes of Washington apples sold for \$2090.05. It shows that of this amount the grower received \$965.05. The facts presented show where went that difference of \$1125 between the grower's share and the sale price.

H. V. Rominger, proprietor of Sunny Slope Orchards, was the grower and consignor of these apples. They were sold in New York by the firm of Steinhardt & Kelly. Facts about distribution of proceeds from sale of this particular car of fruit are given in a letter written to Mr. Rominger by J. R. H. Steinhardt, who has given permission for its publication.

Mr. Rominger, after receiving returns on the apples, wrote a letter of protest. While the orchardist spares no expense and labor to keep his orchard free from disease and pest, he wrote, "when he is ready to sell his fine fruit he is at once up against a costly commercial combat and a decayed, vermin-infested transportation and marketing system, the most intricate and costly of any country in the world."

Here is the history of that carload sale of apples, as written in reply by Mr. Steinhardt:

"I have made it a point particularly to look into the matter of car No. 95,872

and will try to answer your contentions to the best of my ability. This car, as you will notice, contained 798 boxes, of which, according to your invoice, 245 were extra fancy, 369 fancy and 184 choice.

"The car grossed \$2090.05, of which the net proceeds amounted to \$965.05 including the advance, showing a difference between the actual amount for which the car was sold and the amount eventually returned to you of \$1125. This certainly looks outrageous on the face of it. However, let us go into the details and see if there is any way of eliminating this enormous expense.

"Here is an expense of almost 100 per cent over and above the amount which was returned to you. That is, the car sold for a little over \$2000 and you got only about \$965, therefore the \$1125 must be accounted for somewhere. Now let us get at it. The railroad got out of this deal, for carrying charges, labor and sorting, \$661.27, which is almost one-third of what the car realized. Next we come to the warehouse. The warehouse got for storage, unloading, loading and insurance, \$254.72. This will show you that between the railroad and the storage warehouse the expense of this car amounted to \$915.99, altogether an impossible sum to put on a car of fruit.

"I thoroughly appreciate that this outrageous condition of affairs cannot be permitted to continue. However, in the meantime, what are we going to do about it?

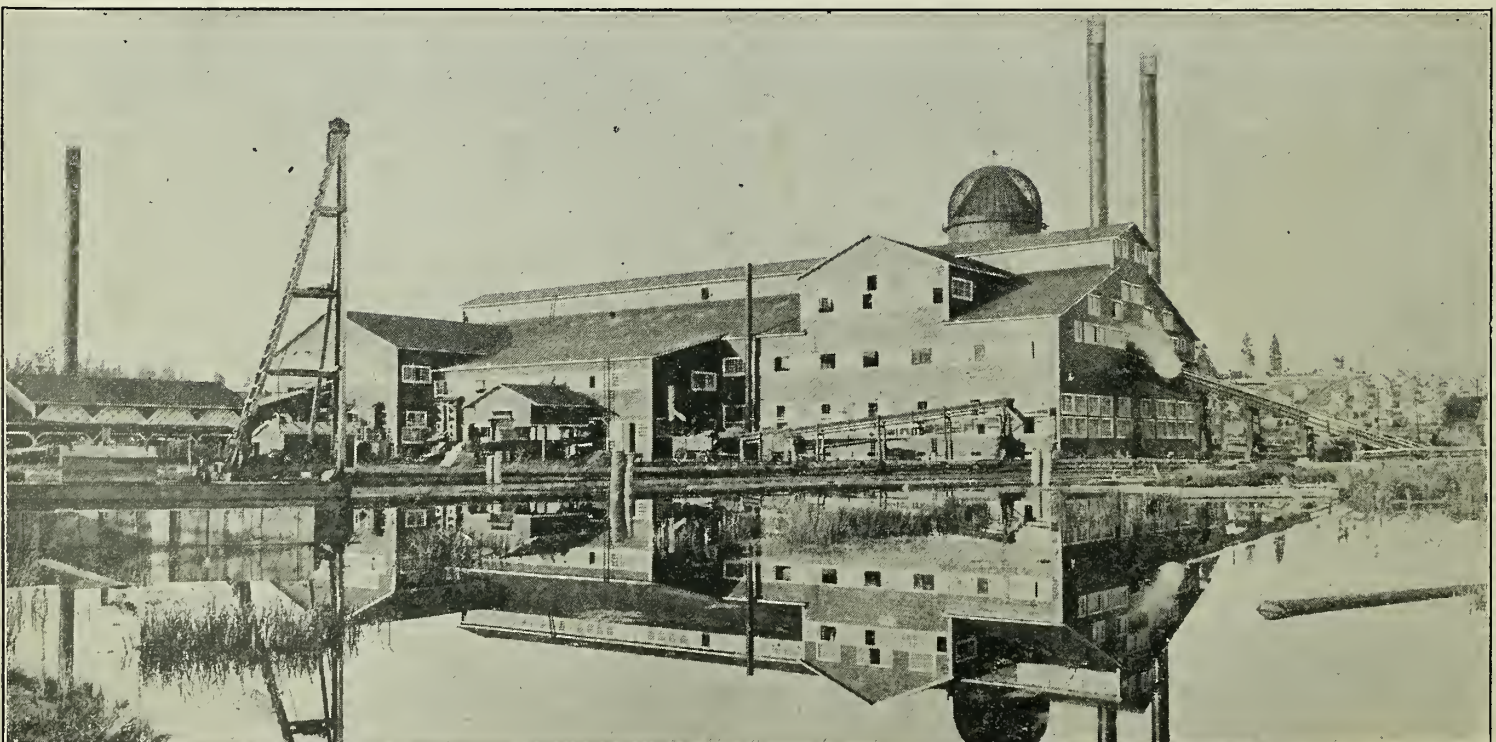
NOW to go ahead further with the expenses of this car: You will notice that there is a charge of ten per

cent commission made by us, which amounts to \$209. This is a legitimate commission out of which we have to pay not only our overhead here in New York, but also our overhead in White Salmon. So far as this end of it is concerned we hire the very best of help, paying our salesmen in charge of apple sales up to \$150 weekly, which you will acknowledge is a good salary. Besides this we keep an efficient traffic department in our employ, who are always working on behalf of our shippers and who, I might incidentally mention, have brought claim against the railroad for the ten to 12 boxes which were either stolen or emptied while in transit and for which you will receive your remuneration in due time, as soon as we get it from the railroad.

"You will concede that the amount realized for the car, considering the three grades, was fairly good. As you probably know, the market this year was not anything extra good. If you will look over your account sale you will find that this car contained 231 boxes of extra fancy, which grossed \$682.30, which is approximately \$3 per box, and you will notice that in these extra fancies there were 16 boxes of 175s and smaller, so you will concede that \$3 was a good price.

"You will also notice that this car contained 368 boxes of fancy, which grossed \$943, or approximately \$2.60 per box, which you can well imagine is a very, very good price for fancies this year, especially considering that the fancies contained 103 boxes of 175s and smaller. You will note that the choice amounted to 184 boxes, which grossed \$457.20, or approximately \$2.50 per box, which you will concede is a most excellent price for choice, especially as this lot contained 44

(Continued on page 19)



Typical big plant from which Northwest supplies its own fruit box needs.

Efficient Boxing of Fruit

By T. J. STARKER

Manager Box Bureau, Western Pine Manufacturers' Association

THE fruit grower, to be a success, must not only produce a product that is well nigh perfect, but he must be a successful marketer. If he sells through an association he may greatly lessen his efforts along this line, but he must still take considerable interest in the association affairs in order to make it a success.

One of the big steps in successful marketing is to see that the final consumer of the boxed product—be it apples, peaches, or other fruit—receives your product in good condition. A box that is dirty, split or improperly nailed or constructed, leaves its impression on the buyer and also on the fruit it contains. It is not enough to see that the cars of fruit get through to the great jobbing centers in good condition. Even more important is the question of the condition in which they arrive at the final purchaser's home, after having traveled by way of freight one or two hundred miles and been handled and jostled innumerable times.

One great producing region of the Northwest ships one-third of its crop, on the average, to Europe, and when the apples are packed and put into the storehouse it is unknown which boxes will travel to foreign shores. Thus it is necessary to use extreme care in putting up each container so it can stand such a journey and arrive with its contents undamaged. With the big crop which is estimated for the eastern states this year, it will be good policy for the northwestern growers to do all they can to extend their markets abroad. This will incur the necessity of better boxing.

The following points should help toward the goal of efficient boxing:

The holding power of the cement-coated nails is from 10 to 30 per cent greater than that of the same sized smooth nail.

The diameter of a nail should be great enough so that it may be driven easily, which is usually the limiting factor, but should not be so small that it will break in use.

Use nails with big heads, as many failures are due to the head pulling through the wood.

When a nail is driven into a dense piece of wood it produces a greater splitting force than when the same nail is driven into a soft piece of wood. This is slightly counter-balanced by the greater resistance of the dense piece, but as a rule the dense piece will split more than the lighter species, with the same nailing.

Green wood is much softer than dry

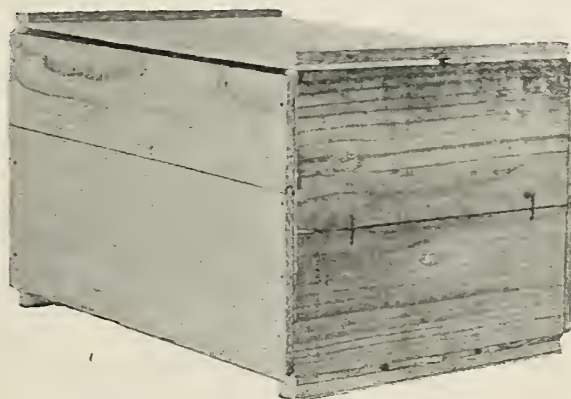
wood, and the nails can be driven in and withdrawn from green much more readily than from dry wood. You want them to hold, so use dry shook.

The moisture content of wood when green may vary from 30 to 200 per cent of the dry weights, depending on the species and condition of growth.

Boxes made of lumber in the proper moisture condition will stand ordinary storage without appreciable loss in the ability of the nail to hold.

The effect of over-driving nails is to reduce their resistance to withdrawal. Over-driving causes the heads to break the fibre of the wood under the heads, decreasing their holding power.

The ends of boxes must be of such thickness that the nails will not run out under ordinary conditions.



Standard apple box of the Northwest

The nails must be small enough in diameter so they will not cause splitting. The length of the nail, rather than the gauge, seems to be the principal factor in its holding power.

The "penny" of the nail should not be greater than the thickness in eighths of an inch of the wood which holds the point of the nail. For the softer woods nails may be one penny larger; for hard woods one penny smaller should be used.

For six-penny or smaller nails held in the side grain, there should be a spacing of two inches, and for the same nail in the end grain a spacing of $1\frac{3}{4}$ inches. For larger nails the spacing should increase one-quarter inch for each "penny."

No board should have less than two nails at each nailing end.

Lumber should be free from knotholes and loose or rotten knots. Knots whose diameter exceeds one-third the width of the board should not be permitted and no knots should be permitted which interfere with the proper nailing of the box.

No piece less than $2\frac{1}{2}$ inches face width should be used in any part, except cleats.

Any part of a box which is six inches or less in width should be one-piece stock.

Observations of packages which have failed in service and tests on packing boxes by the Forest Products Laboratory, Madison, Wis., have shown that the most common defect in box construction is inadequate nailing. Attempts to strengthen boxes by the use of thicker lumber without regard for nailing very often only wastes material. The extra wood may not be needed so much as a few more nails.

In a series of tests on apple boxes at the laboratory, the bulge pack, with its necessarily thin top and bottom, was found the cause of a great deal of bruising and these parts are also the weakest part of the box. Additional nailing, however, helps and it was found that five six-penny cement-coated nails per nailing edge were about one-half stronger than four, and that six nails practically doubled the life of the box over what four nails would withstand.

A few nails more and their driving costs only a trifle, but they are good insurance. Good fruit is worthy of a good package.

Picking Twice

MOST apple growers remove all the fruit from the trees at one picking. Many, however, according to observations of the United States Department of Agriculture, make two or more pickings during the season, especially when the fruit is not uniformly of good color, but is otherwise of high quality. The advisability of making more than one picking depends upon the extent to which the size and color of the fruit are affected by the quantity borne by each tree.

The apples on the outside of the tree, especially the larger and better colored ones, are removed at the first picking to permit the limbs to lift and expose the uncolored fruit to the sun. This thinning also tends to bring about an increase in size of the fruit remaining on the trees. In the course of a week or ten days the second picking is made, when the remainder of the crop usually is removed.

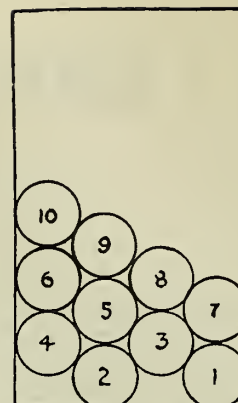
Two pickings are more expensive than one because of the additional time required, though the increase in the market value of the crop often justifies this practice. If the crop is of low quality the value of the returns usually are not sufficient to warrant the extra cost of more than one picking.

Better Fruit's Standard Apple Packing Chart

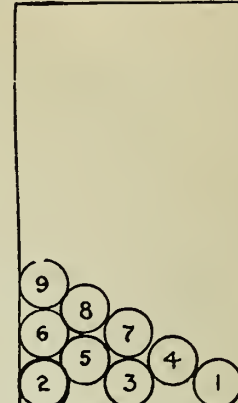
All packs to go in the Northwest Standard Box— $10\frac{1}{2} \times 11\frac{1}{2} \times 18$ inches inside measurement

The apple grading rules and regulations used in connection with the packs illustrated below are the new ones adopted for 1922 by the State Agricultural Department of Washington and are largely the same as those that are used in Oregon, Idaho and Montana with slight variations in the grading. All the packs here described are for the standard apple box measuring $10\frac{1}{2} \times 11\frac{1}{2} \times 18$ inches inside measurement. A description of all packs not illustrated can be found under the heading "Apple Packs."

All apples packed under these regulations shall be arranged in the container according to approved and recognized methods and all packages shall be tightly filled, but the contents shall not show excessive or unnecessary bruising as a result of the pressure exerted in enclosing an over-filled package. Each packed box must show a minimum bulge of one-half inch on both top and bottom. Any apples wrapped shall be well wrapped to prevent "flagging."

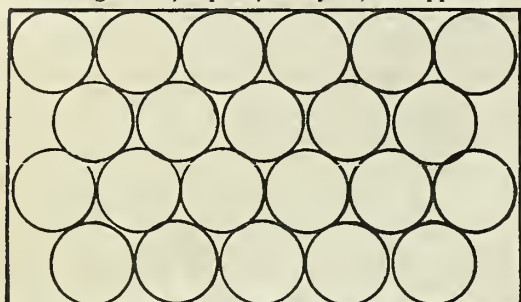


How to start a 2/2 diagonal pack



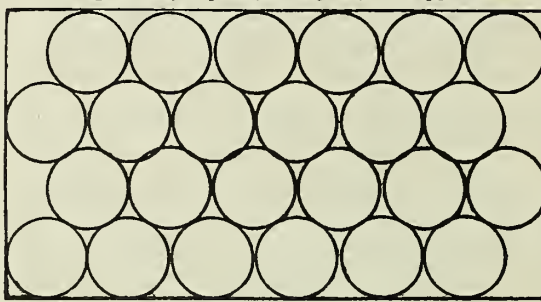
How to start a 3/2 diagonal pack

Diagonal 2/2 pack, 4 layers, 88 apples



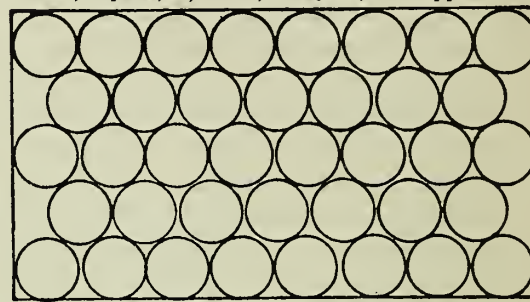
First and third layers

Diagonal 2/2 pack, 4 layers, 96 apples

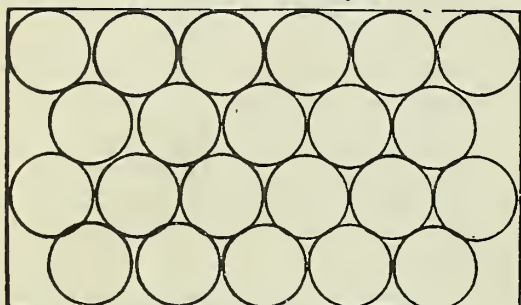


First and third layers

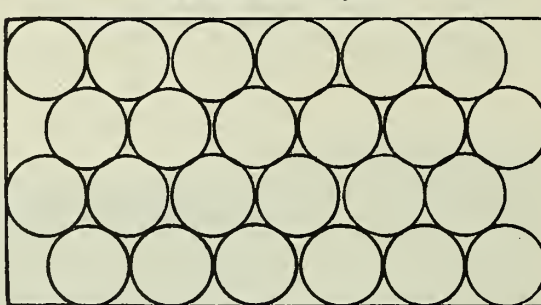
3/2 pack, 4 1/2 tier, 5 layers, 188 apples



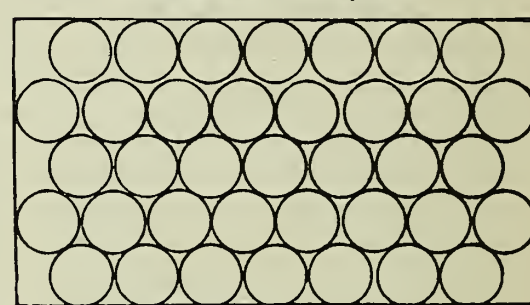
First and third layers



Second and fourth layers



Second and fourth layers



Second and fourth layers

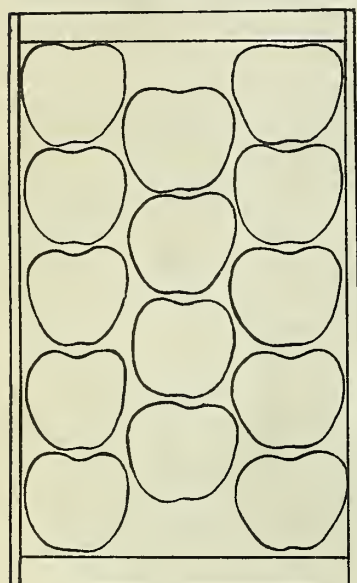


Figure 1—41 apples

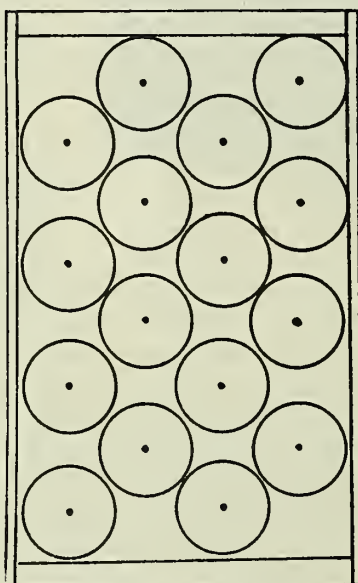


Figure 2—64 apples

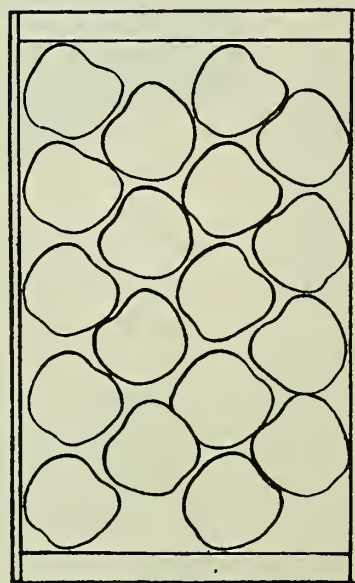


Figure 3—72 Apples

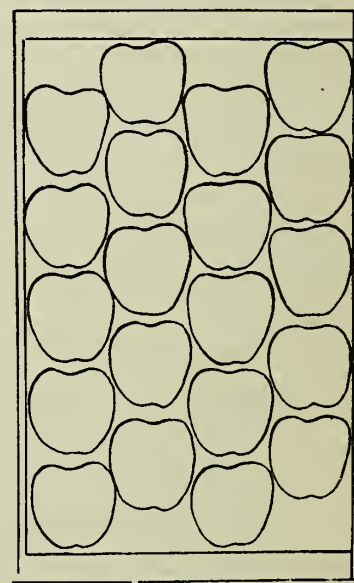


Figure 4—30 apples

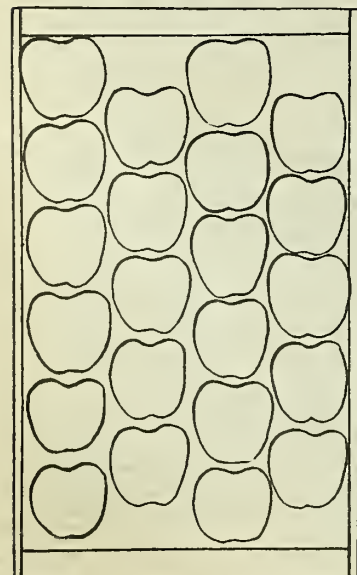


Figure 5—88 apples

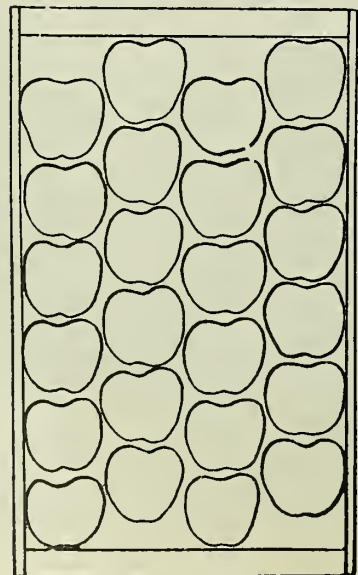


Figure 6—96 apples

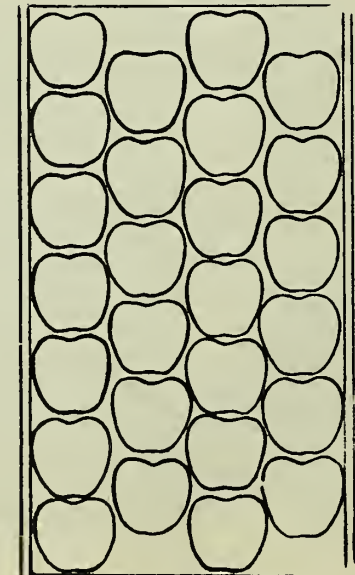


Figure 7—104 apples

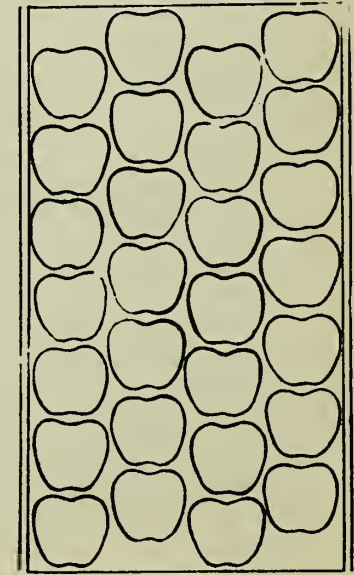


Figure 8—112 apples

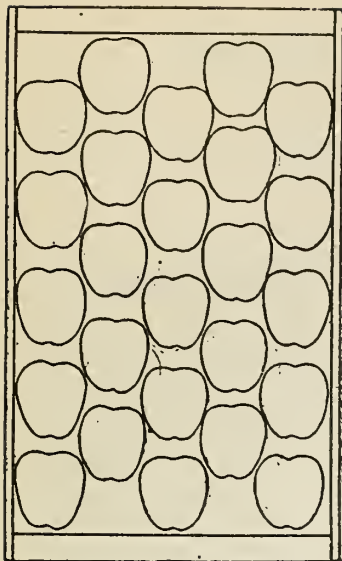


Figure 9—125 apples

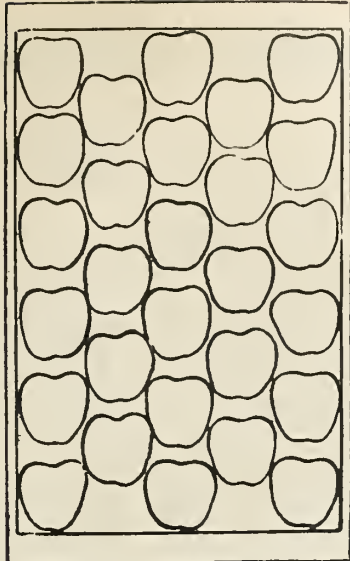


Figure 10—138 apples

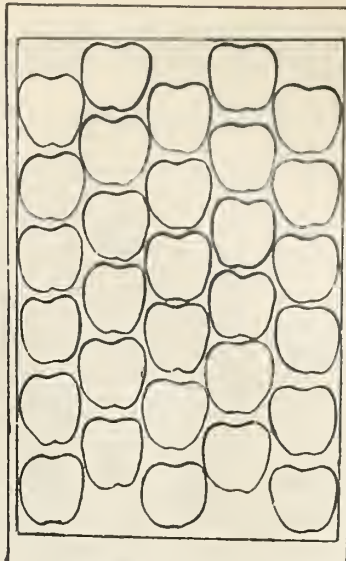


Figure 11—150 apples

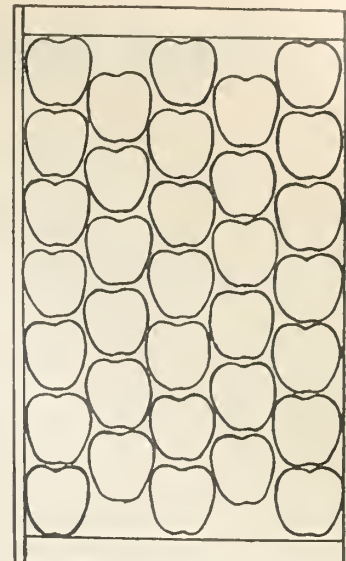


Figure 12—163 apples

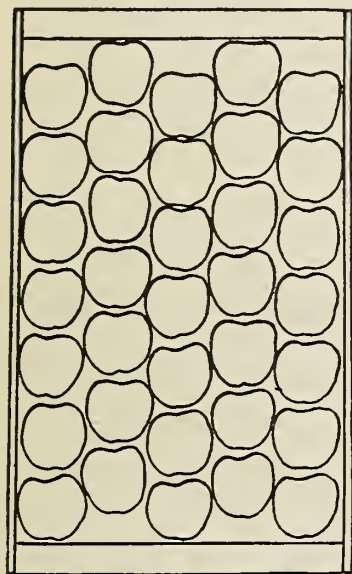


Figure 13—175 apples

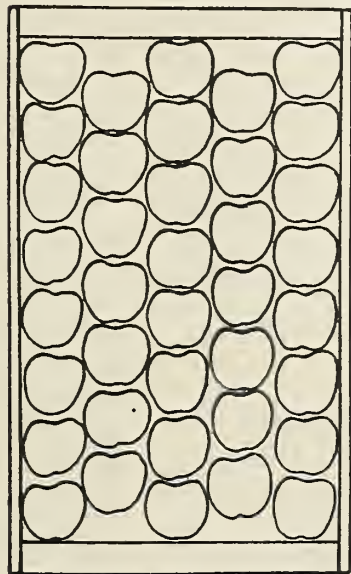


Figure 14—188 apples

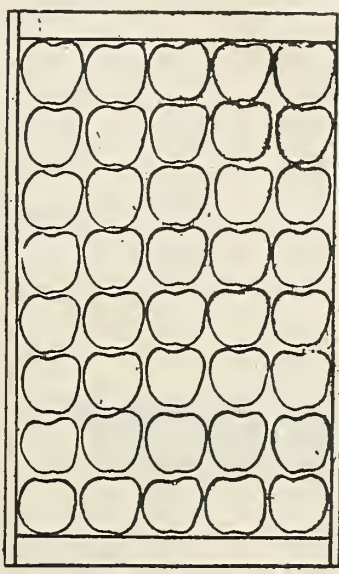


Figure 15—200 apples

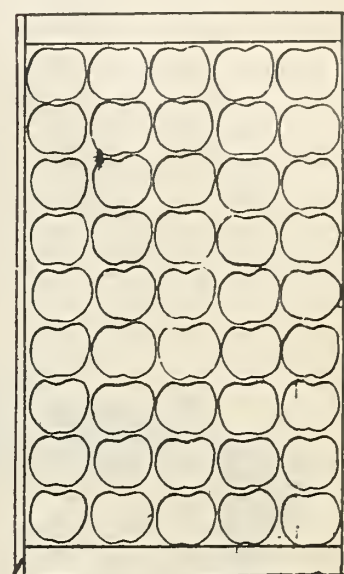


Figure 16—225 apples

Apple Grading Rules — Season 1922

Extra Fancy—Extra Fancy apples are defined as sound, mature, clean, hand-picked, well-formed apples only, free from all insect pests, diseases, blemishes, bruises and holes, spray burns, limb rub, visible watercore, skin punctures or skin broken at stem, but slight russetting within the basin of the stem shall be permitted.

Fancy Grade—Fancy apples are defined as apples complying with the standard of Extra Fancy Grade, except that slight leaf rubs, scratches, or russetting shall be permitted up to a total of ten per cent of the surface, and provided that scab spots not larger than one-quarter inch in diameter in the aggregate shall be permitted in this grade.

"C" Grade—"C" Grade is to include all other merchantable apples free from infection except apples with bruises in which the skin is broken or bruises larger than one-inch in diameter. Healed stings to be allowed. Apples showing effects of freezing will not be admitted under this grade. Apples of this grade must not be marked "Choice."

Combination Grade—When Extra Fancy and Fancy apples are packed together the boxes must be marked "Combination Extra Fancy and Fancy." When Fancy and "C" Grade apples are packed together the box must be marked "Combination Fancy and 'C' Grades." Combination grades must contain at least 25 per cent of apples which are of such grade as would be permitted in the higher grades. None of the higher grade apples shall be sorted out of any lot and the remainder packed as combination grade.

Orchard Run—When Extra Fancy, Fancy and "C" Grade apples are packed together the boxes must be marked "Orchard Run," but Orchard Run apples must not contain any fruit that will not meet the requirements of "C" Grade. It shall be unlawful to remove any of the higher grade apples from any lot and then pack the remainder as "Orchard Run."

COLOR REQUIREMENTS

Apples shall be admitted to the first and second grades subject to the following color specifications. The percentage stated refers to the area of the surface which must be covered with a clear shade of red characteristic of the variety:

SOLID RED VARIETIES

	Extra	Fancy	Fancy
Alken Red	75%	25%	
Arkansas Black	75%	25%	
Baldwin	75%	25%	
Black Ben Davis	75%	25%	
Detroit Red	75%	25%	
Gano	75%	25%	
King David	75%	25%	
Red June	75%	25%	
Spitzenburg Esopus	75%	25%	
Spitzenburg Kaign	75%	25%	
Vanderpool	75%	25%	
Winesap	75%	25%	
McIntosh Red	66 2/3%	25%	

STRIPED OR PARTIAL RED VARIETIES

	Extra	Fancy	Fancy
Delicious	50%	15%	
Stayman Winesap	*50%	15%	
Black Twig	50%	15%	
Ben Davis	50%	15%	
Bonum	50%	15%	
Fameuse	50%	15%	
Geniton	50%	15%	
Hubbardston	50%	15%	
Jonathan	50%	15%	
Lambertwig	25%	10%	
Missouri Pippin	25%	10%	
Northern Spy	25%	10%	
Ontario	25%	10%	
Red Astrachan	25%	10%	
Rainier	66 2/3%	25%	
Rome Beauty	66 2/3%	25%	
Salome	50%	25%	
Stark	50%	15%	
Sutton	50%	15%	
Willow Twig	50%	15%	
Wagner	50%	15%	
Wealthy	50%	15%	
York Imperial	66 2/3%	25%	
Alexander	50%	15%	
Chenango	50%	15%	
Gravenstein	50%	15%	
Jeffries	50%	15%	

King	50%	15%
Oldenburg	25%	10%
Shiawassee	25%	10%
Twenty Ounce	25%	10%
* No color requirement on Fancy Rome Beauty 96 and larger.		

RED CHEEKED OR BLUSHED VARIETIES

Extra Fancy—Perceptibly blushed cheek.
Fancy—Tinge of color.

Hydes King
Maiden Blush
Red Cheek Pippin

GREEN AND YELLOW VARIETIES

Extra Fancy—Characteristic color.
Fancy—Characteristic color.

Grimes Golden
Yellow Newtown
White Winter Pearmain
Cox's Orange Pippin
Ortley
Yellow Bellefleur
Rhode Island Greening
Winter Banana

SUMMER AND EARLY FALL VARIETIES

Summer varieties such as Astrachan, Bailey's Sweet, Beitigheimer, Duchess, Early Harvest, Red June, Strawberry, Twenty Ounce Pippin, Yellow Transparent and kindred varieties, not otherwise specified in these grading rules, together with early fall varieties such as Alexander, Blue Pearmain, Wolf River, Spokane Beauty, Fall Pippin, Waxen, Tolman Sweet, Sweet Bough and other varieties not provided for in these grading rules, as grown in sections of early maturity, shall be packed and marked in accordance with the grading rules covering Fancy Grade as to defects but regardless of color.

APPLE PACKS

Style of Pack—Diagonal	No. in Box
2x1 wide 4-4 long, 3 tier deep.....	36
2x1 wide 5-4 long, 3 tier deep.....	41
2x1 wide 5-5 long, 3 tier deep.....	45
2x1 wide 6-5 long, 3 tier deep.....	50
2x2 wide 3-3 long, 4 tier deep.....	48
2x2 wide 3-4 long, 4 tier deep.....	56
2x2 wide 4-4 long, 4 tier deep.....	64

(Continued on page 22)

Cheap Ventilated Storage Cellar

By J. D. NEVIN

Easton, Pennsylvania

THE storage here described has been tested by two decidedly unlike winters and found satisfactory.

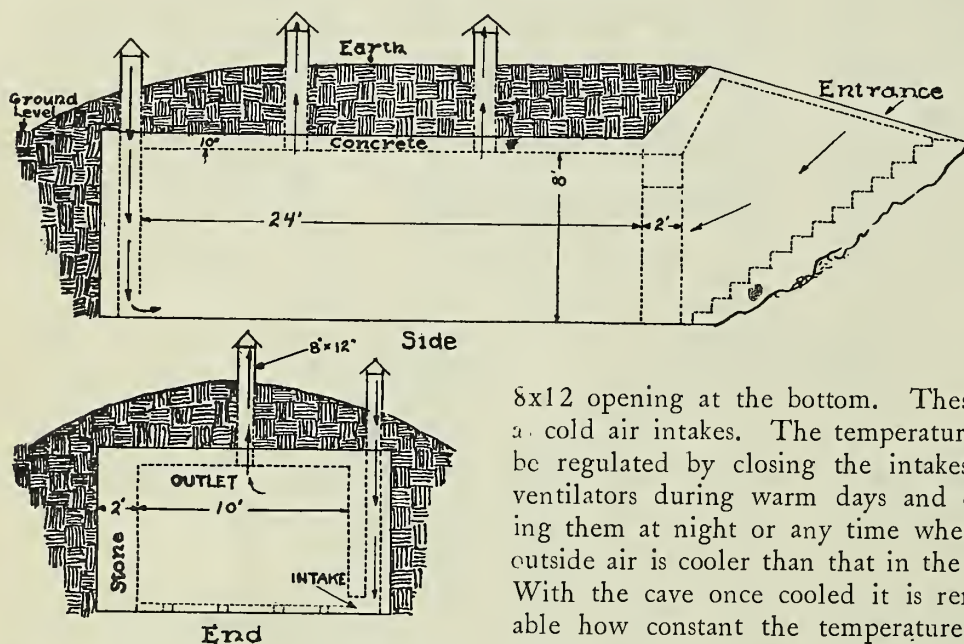
The winter of 1920-21 was an unusually mild one, the temperature seldom falling below 30 degrees Fahrenheit and then for only a few days at a time.

The apples, Stayman Winesap, were put in the storage the latter part of October. The temperature of the cave was 55 degrees, the outside temperature 65 and 70. The mercury in the cave remained steadily at 55 until the middle of December, when a few days of cold weather lowered it to 40, which we held for a month or more. Then it rose to 42 and remained so until spring. The apples taken out in March were in perfect condition. A few remaining until the last week in April, were in the same condition except slight scald of the skin. One basket, kept until August 1, was in

on all farms in this section. The original inside dimensions were seven feet wide, nine feet long, and seven feet high. It was built of stone, with arched roof, and with entrance by means of a flight of steps. Five to seven feet of earth was placed on the roof in the form of a mound which sheds the water.

This cellar being too small and unventilated, we uncovered it and dug a hole 24 feet long and ten feet wide. In digging we ran into a vein of lime-stone which furnished enough stone to wall up the new cave. The roof is of concrete, ten inches thick, reinforced with railroad iron and old fence wire. Set in the roof are two ventilators of 8x12-inch terra cotta flue lining.

On one side and one end the same size lining is run vertically from the surface of the ground to the bottom of the cave and set in the wall, leaving about an



Drawing showing construction plan of cellar.

fair condition, though the skin was badly scalded.

Last winter the apples were stored somewhat earlier and the temperature reduced within a few weeks to 40 degrees. In December the thermometers in the cave showed 32 degrees, and this was held, throughout the winter, with not more than two degrees variation either way.

The apples each year were allowed to cool off during the night before being stored in the early morning. The fourteen-quart peach basket was used, stacked six high, leaving about a foot between the top of the stack and the roof for air circulation. Some that were stored in barrels kept in better condition than those in the baskets.

The cave was the ordinary sort found

8x12 opening at the bottom. These act as cold air intakes. The temperature can be regulated by closing the intakes and ventilators during warm days and opening them at night or any time when the outside air is cooler than that in the cave. With the cave once cooled it is remarkable how constant the temperature may be kept by careful attention to the ventilation.

The floor is of earth with a slat grating made of 2x4 stuff and roofing lath. The earth floor keeps the air moist enough to prevent shriveling of the fruit. This should be watched carefully and the floor sprinkled with water if it gets dry, or buckets or tubs containing water may be placed about.

The present cave holds about 1000 bushels of fruit stored in bushel crates. If a side hill is available it would do away with the inconvenience of the steps.

The side and end walls should come up even with the surface of the ground and earth should be placed over the roof three or four feet deep and extending over the walls to prevent surface water from getting behind them. This thickness of earth also aids greatly in maintaining the temperature in the cave. It would be

well to cover the roof with paper and tar before putting on the earth.

This cave was built entirely by farm labor at a cost of \$300. The present price of cement and other materials would lower this cost considerably.

Caution on Mulches

THIRTY years of investigation by the United States Department of Agriculture and the much longer experience of practical farmers have demonstrated that about the only way of conserving soil moisture for the use of agricultural plants in the regions of scanty rainfall is to provide a suitable seed-bed for their germination and early growth and to prevent useless weeds that would otherwise compete with them. Theoretically, covering or mulching the soil for the purpose of preventing the loss of soil moisture is very efficient; practically, it has very narrow limitations.

There are several things required of a soil covering or mulch besides simply preventing the loss of moisture. Among these may be mentioned the following: It must "stay put;" that is to say, it must be of such character that it will not be blown away by the high winds common to all arid regions, except possibly in orchards or berry patches and, in them, the straw mulch is frequently objectionable on account of its harboring rodents, especially field mice. A soil covering must let rain into the soil. This rules out the dust mulch which is almost, if not quite, impervious to ordinary rainfall, as it puddles, producing a sheet of paste over the surface that prevents the water from reaching the roots of the crop plants.

A straw mulch, if thick enough to prevent the growth of weeds, will absorb most, if not all, of an ordinary rainfall. The water thus absorbed will evaporate very quickly, as soon as the rain ceases and the sun begins to shine on the mulch, never reaching the roots of the crop plants.

The heating of the soil by the sun's rays and its aeration by exposure to the winds are important factors in the growth of agricultural crops. Many wild woods and swamp plants thrive without these conditions, but nearly all of our agricultural plants have been developed through long periods of time in soil open to the free access of the sun and the wind, and these conditions seem to have become necessary to their fullest development.

With 35,000 acres of figs under cultivation, the orchards planted to this ancient fruit in California have now an estimated value of \$20,000,000. The fig crop last year brought \$1,000,000 and will greatly exceed that figure this year.

Fruit Standardization and Inspection

By WELLS A. SHERMAN

*Specialist in Charge Fruit and Vegetable Division, Bureau of Markets and Crop Estimates,
U. S. Department of Agriculture*

YOU apple growers of the Northwest justly pride yourself on being pioneers in the grading field. We congratulate you on your record. If I should venture one general criticism it would be that you still seem to be pioneering, and that it takes you a long time to settle down. Every year you overhaul your grades and usually change them more or less, but I imagine none of you would claim that every change has been an improvement over the rule which preceded it.

Your product has gained its recognition and secured its market on the general integrity and excellence of your standard grades. Those grades should not be debased, but in your sales contract at least you should allow yourselves such tolerance that you can stand a perfectly fair, sensible, impartial and accurate inspection, either at shipping point or at destination. I think we all realize that you have not done this in the past. By advertising a grade and tolerance that could not be lived up to you have placed a deadly weapon in the hands of the unscrupulous rejector, and have made it impossible for us to protect your interests through our inspection service as effectively as we would like to do. We earnestly hope that you will this day take steps measurably to improve this situation.

The whole nation-wide movement towards standardization of all products in commerce has for its object the improvement and clarification of economic relationships. It is a tremendously important movement, and makes for better morals and ethics in every industry affected.

Our bureau has recommended for nation-wide adoption certain grades which we have desired to modify after a few years of practical experience in their application, so I hope you will understand that my gentle criticism of your disposition to change your apple grades every year was advanced with a truly sympathetic understanding of your real difficulties. It is vastly better to remain a long time in the shack or the dugout of the pioneer and to shift your position on this question a little too often than to run to your legislature with a set of grades and specifications, only to find that when you have them written into law you have exchanged the freedom of the pioneer camp for the rigid confines of the state's prison.

There are some states in which we could ask nothing better for the fruit and vegetable industries today than that they might get rid of some of the grading laws which were put through in an hour of

Few fruit growers know much of the workings and problems of the federal service dealing with inspection, grading and standardization. Unfortunately it is a service that is hampered and limited by the very acts of congress by which it is created. A better understanding of these limitations must eliminate some of the criticisms growers and shippers feel inclined to make at times. At least it is only fair that those connected with our fruit industry learn what they can about this whole subject. Mr. Sherman, who heads this service, gave a lot of inside information about it before the Washington state grade and pack conference. This article reproduces most of what he told the fruit men at that time.

over-confident enthusiasm, or because some official, some association or some neighborhood saw an opportunity to fix things as they thought they wanted them.

To be perfectly frank with you, we want the fruit and vegetable men of all the states to have such confidence in our bureau that they will be willing to call us into consultation with their own local marketing officials before initiating any changes in grades. Touching the products as we do from grower to consumer, from coast to coast, having no axe to grind, seeking only to be worthy and useful servants of the people whose money we spend, we believe we are in the best position to weigh the arguments for and against any change of grading and inspection rules. We believe no one has yet found us arbitrary or indifferent or slow of understanding on any question which has come up in this field.

BUYER MAKES MARKET—We must never forget that it is the buyer who makes the market. All production proceeds in anticipation of demand. You dare not plant as you please or harvest as you please or grade or pack as you please. At every step you must have the demand and preference of your consumer in mind. Your customer may be the local shipper but his customer, in turn, is the dealer in the eastern market, and, ultimately, the individual consumer. You cannot be sure of the wisdom of any course which you may contemplate until you have determined its effect on every agency in the chain of distribution. The federal bureau ought to be able to deter-

mine some of these things more accurately than any state or local agency.

You tax yourselves to support us, and expect us to develop and maintain a national viewpoint on these questions. If we are doing this, you should get the worth of your money by utilizing our machinery and our viewpoint. If we are not able to serve you in this respect, we should be shown the error of our way, and if we do not reform, our organization should be disbanded.

I HAVE been over 25 years in the public service and with the bureau of markets since the day of its inception. I want to assure you that its policy of painstaking investigation and constructive service so thoroughly permeate and dominate its personnel all the way down that none of the ordinary vicissitudes of life and death; of resignation and new appointment; change of national administration; consolidation of bureaus; or of reorganization of the federal departments are all likely to injure its basic efficiency. Can any citizen of the United States speak with equal confidence of the policy of his own state in this field? How often is state legislative action based on all the facts obtainable from coast to coast as they affect the final working out of any plan proposed? In how many states will the members of the departments and boards, as they stand today, be on hand to assist those who may undertake the revision of present action at, say, four years hence?

It is because of these differences between federal and most local agencies that I have ventured to say plainly that we believe we can be of real service to you if we are taken into your confidence when you have matters under consideration which affect the marketing of products which go chiefly into interstate commerce. When we are called into conference, we usually urge our friends to forego the temptation to write into statute law grades and standards which represent even the best judgment of today. This is a field in which the wisest are the least cocksure, and in which the radical should be squelched. The one thing we can predict with certainty is that changes in the methods or conditions of production and of trade will make occasional modifications necessary. Therefore, why not avoid the prison walls which legislation builds around a grade, a pack or a commercial standard?

Perhaps I have dwelt too long on grades, for I know you want a statement of policy or program governing the in-



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GARDNER



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Seattle

spection service of the federal department, which is based as far as possible on commercial grades, whether for apples, potatoes, peanuts or what-not. First, please remember that our men have inspected over 80 commodities first and last, while you are interested in a few fruits only. Those of you who are responsible for inspections at shipping point seldom find it necessary to train one inspector to handle more than four products and in most cases less. To that extent your training problem is simpler than ours, and I congratulate you. Most of your men are concentrated in districts sufficiently centralized so that effective supervision should be possible. We have one man each at cities hundreds of miles apart, with their supervisor perhaps more than one thousand miles away. We centralize our training in Chicago, but after the training period we must scatter our men.

If time permitted, I would not hesitate to go frankly into detail with you in discussing our difficulties and the rather complete system of checking and reviewing of certificates and of otherwise coaching our men to bring about the utmost possible uniformity of action, but if I did so it might be interpreted as an apology for this service, when as a matter of fact, it needs none. We admit that our inspectors are human like the rest of us, but we know that our system of selection and training is such that the average ability,

integrity and efficiency is much higher than will be found in any ordinary group of men in the commercial world. Congress has made our certificates prima facie evidence in United States courts, and no certificate that we have issued has ever been upset.

Many shippers have thought that our inspections were technical or unfair, and occasionally we have received a hot-headed accusation of dishonesty, but I believe every complainant has been convinced when we could get him to come and look at the goods. Our men are trained to consider themselves disinterested and impartial protectors of the shippers' interests. Since our certificates are legal documents, we will not allow a careless or incompetent man to write one if we know it. Any notion that our men are under the influence of the trade is as far as possible from the truth. Copies of every certificate issued are carefully reviewed and notes supporting them are required to be kept under a system which makes it impossible, as we believe, for an incompetent to stay on our force or for a dishonest inspector to "get by" for any length of time. We have never yet had to dismiss an inspector for dishonesty and only a few for carelessness.

It is natural that the shipper's suspicions should be aroused when the grade or quality of his shipment is challenged. Our inspectors know as well as you that many

rejections made on a falling market are unjustified. They do not go to a car with any idea of assisting the rejector. They are trained from the beginning to regard themselves as the absolutely impartial custodian of the shippers' interest. They must see to it that in the certificate which they issue the shipper has a fair deal.

We absolutely know that this service is entitled to your support and patronage; that we do not make a technical or laboratory inspection except to identify the causes of commercial injury; and we want you to tell all the growers and shippers in your territory that whenever they have any car in a market where we have an inspector and it is worth four dollars to them to know the exact truth about the grade or condition of that car, they should ask for government inspection.

If, on the other hand, they want a witness who will look at the car solely in their interest and who will furnish them a so-called inspection certificate, framed to support their contention, ignoring or minimizing the facts or conditions which may support the other side, then they should by all means avoid government inspection and employ some of the private inspection agencies, who can be hired to make just about the sort of inspection which I have just described. We have inspected some cars which compelled us to realize the fact that the shipper does not always want an impartial inspection any more than the receiver always wants it. If any shipper thinks that this service is not just what it ought to be, we hope he will lose no time in taking the matter up with us and explaining in complete detail the reasons for his opinion. An ideal personnel can be built up only by locating as quickly as possible any man who deviates from the straight and narrow way.

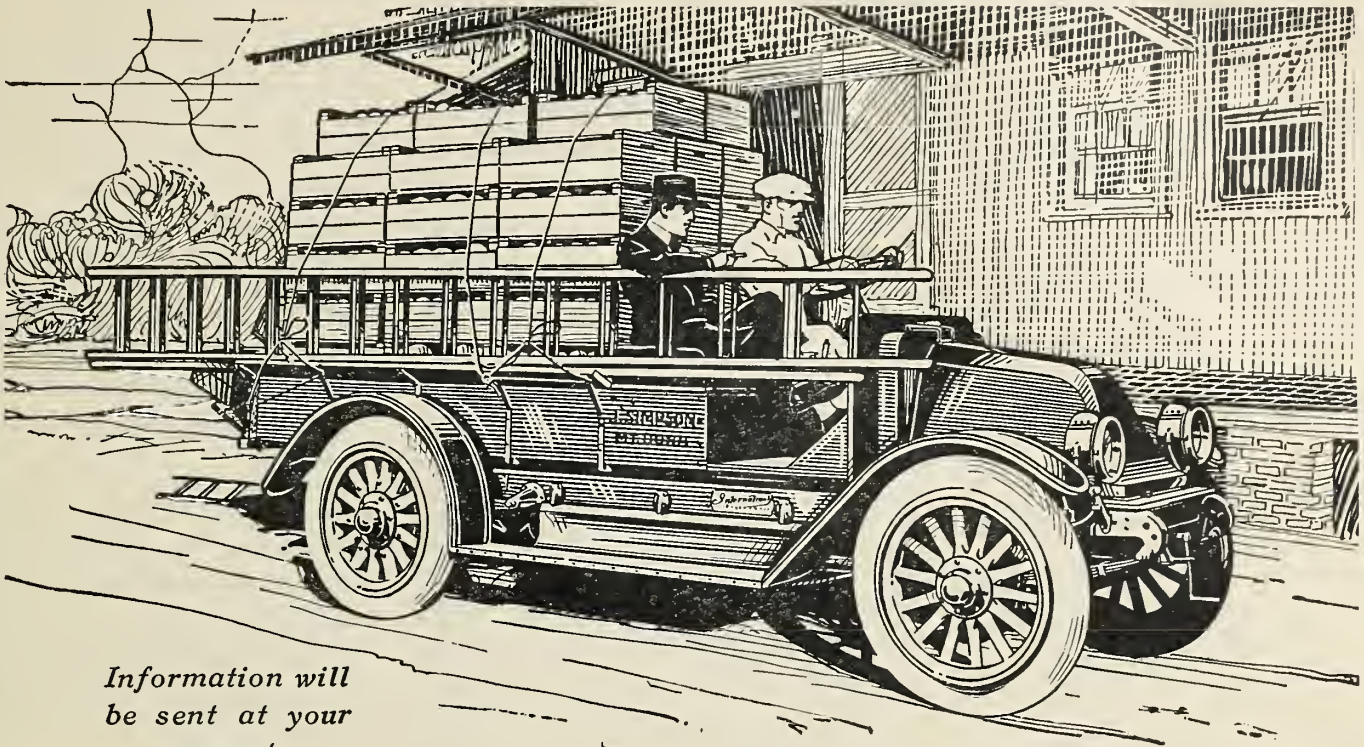
SHIPPING POINT INSPECTION—If I have such confidence in this service, why did I begin by emphasizing some of the difficulties of organization and supervision? Simply as a background for a few words about inspection at shipping points. This question comes close home to every man here. Many of you are wondering, just as I am, what the future of that work will be.

After the little that I have said about the problem of handling an inspection force of some 50 men in some 30 cities, scattered over more than half the length and breadth of the United States, can you suspect me of wanting the job of selecting and training and supervising and disciplining and promoting and transferring and scolding and comforting the thousands of men who will be needed if we ever inspect even the major part of our carlot shipments of perishables? If effective shipping point inspection is ever

to be the vogue through this broad land. the work must be done chiefly by local men, operating under state or regional supervision and paid otherwise than by appropriation from the United States treasury.

I hope that all of you realize that as matters now stand our hands are tied. We can go no further than we have already gone in furnishing a man to act in co-operation with you of the northwest in securing such uniformity as may be

possible between your inspection service and ours. Our department can issue no certificate except on products received in interstate commerce in important central markets designated for the purpose by the
(Continued on page 20)



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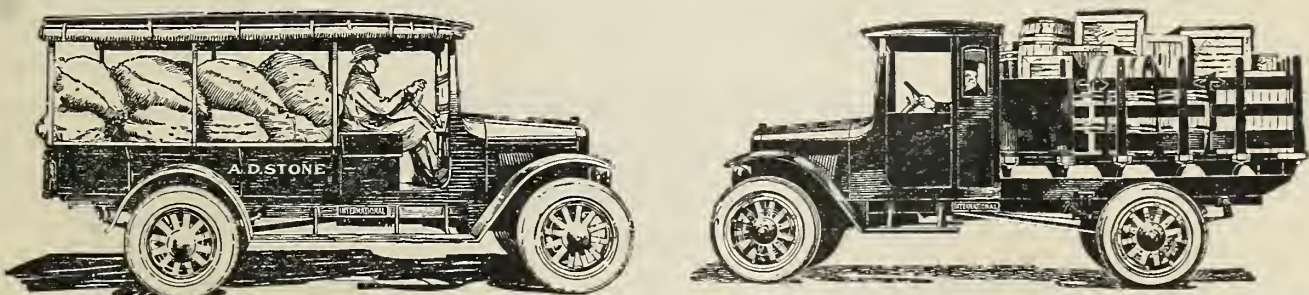
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Advertising Rates on Application

VOL. XVII, NO. 3

Support of Fairs

The old type of country fair has passed. Perhaps it served some useful ends, but it had a lot of attendant evils.

Many readers will remember the sort of fair to which we refer. In the main it may be described as the assembling point for a horde of nomadic fakirs and their victims. Cheap side-shows, gambling stands and other means of separating the patrons from their money were the biggest attractions. Exhibits and educational features were little in evidence and not of much consequence.

There has been a marked evolution of the fair in later years, thank heaven. Today we have real expositions. Exhibits of agricultural and horticultural products hold the important place they deserve. Blue-blooded livestock specimens are crowned kings and queens of the show. Educational exhibits and demonstrations abound.

Indicative of the wide recognition of the educational value of the fairs of the present day is the

fact that government departments and state institutions are participants. The opportunity afforded for teaching the public is perceived and grasped. Lessons of importance, ranging in variety from annihilation of the housefly to the rearing of better babies, are illumined before the eye in exhibits of government bureau and state college.

The individual who goes to a fair merely for amusement is now sadly in the minority. He or she is lacking in certain fundamental requisites. Such an adult need never expect to become a successful farmer, or fruit grower or housewife.

Every person of ambition who makes a living from the soil needs to take an active interest in fairs of his district. An active interest involves something more than merely attending to swell the gate receipts and absorb information. A fair without exhibits no longer rates as a fair. Progressive growers and ranchers are busy perusing the premium lists and preparing to add to the galaxy of exhibits.

Railroad Strike

Greatly exaggerated reports of losses sustained by fruit growers by reason of the railroad strike have appeared in the press. The desire for free publicity that inspired them is to be decried. It is difficult to see how the reports could result in more good than harm.

A transcontinental railroad announced one day an embargo on eastbound fruit shipments. The next morning there appeared in published press dispatches the blatant statements that growers of a certain district had sustained a loss of \$25,000,000 or \$30,000,000 by reason of the embargo.

The dispatches, of course were 99 per cent bunk. They were made all the more ridiculous because the very next day the railroad company withdrew the embargo.

Aside from the smiles it occasions the incident was not worth repeating or analyzing. The serious fact that confronts us is the point that the railroad strike is harming the fruit industry of the Pacific coast—practically all other sections, too, for the that matter.

Last season there developed that rather unexpected car shortage in the west. This season it had early been realized that marketing of the fall fruit crop would be a difficult proposition, with prices none too good. It seems a bit harsh of the Fates to add to the problem this strike complication. It has already done much to depress and demoralize markets.

Financial loss has already been sustained. In criticising the nonsensical and harmful procedure of bragging about a mammoth theoretical loss there was no thought of minimizing actual and impending losses.

If the strike is not settled very soon it will deal a severe blow to growers of apples, pears and potatoes.

No "Dumping"

There is no ground for reports frequently heard from different portions of the country to the effect that produce men dumped in the lake or threw away perfectly good fruit or vegetables as a means of pushing up prices. This is the finding of the special joint commission of agricultural inquiry, reporting back to congress, members of which composed the commission.

According to statements of the congressional investigators, reports of such unethical dumping of perishable food products have almost invariably gained currency where shipments found unfit for human consumption have been destroyed as a health measure.

Most growers will understand and give credence to this explanation.

Legumes for Fertilizer

THE seventy million pounds of nitrogen in the air over every acre of land is the best and cheapest source of that element for general field crops. Legumes draw on this supply. The use of ammonium sulfate or ammonium nitrate may be necessary as a starter on irrigated lands or for use with specialized crops, but where such legumes as alfalfa flourish it is believed to be sound policy to rotate these with other field crops or even to plow in late growth and the stubble and other residue from legume seed crops. Such are the conclusions of the soils department of the Oregon Agricultural College.

Sulfur makes up about one-fourth of the weight of ammonium sulfate and is beneficial to many crops, but commercial flowers of sulfur, containing 99 per cent of the pure element may be purchased for around \$20 a ton less than the sulfate. The sulfur in legumes will stimulate growth and the accumulation on the land of nitrogen from the air. The value of nitrates is not questioned when used as a starter, or where moisture for green manure crops is limited, or when they are used with intensive truck or other crops where rotation is impractical and where the returns are \$75 to \$100 an acre and up.

Continued use of ammonium sulfate on soil in humid sections has caused it to become unfavorably acid, a condition to be guarded against.

Alfalfa or clover sod plowed early should provide the productive soil for potatoes and other cultivated crops. A ton of alfalfa residue contains 50 pounds of nitrogen, 5 pounds of phosphorus, 24 pounds of potash, and 7 pounds of sulfur. A 100-bushel crop of potatoes on the other hand, requires 11 pounds of nitrogen, 4 pounds of phosphorus, 30 pounds of potash, and 10 pounds of sulfur. Sulfur, which with nitrogen makes up the usable constituents of ammonium sulfate, is little needed by potatoes as a direct plant food, and the nitrogen may be obtained in ample amounts from the air by the use of legumes.

Vital elements of a soil that are least plentiful may be determined by soil surveys or soil analyses. To supplement these it is a more far-sighted policy to practice soil building over a long period of years rather than to fertilize for a given crop with but little consideration for the residual effect.

The cherry fly has been discovered in several Washington districts according to announcement of the State Department of Agriculture. Growers discovering the fly are asked to report promptly to a district inspector or the department at Olympia.

Oregon State Fair

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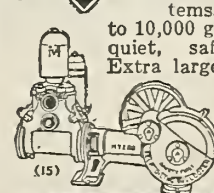
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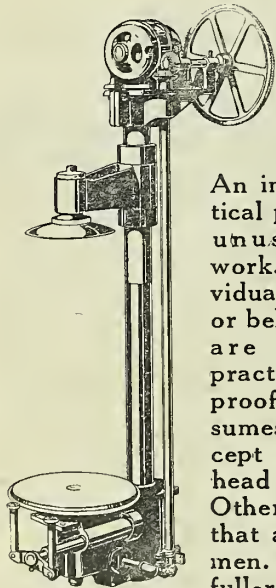
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"The Commercial Apple Industry of North America"

Published by the Macmillan Company is a new book covering all phases of the Apple Growing Industry that "Better Fruit" highly recommends to apple growers or those who contemplate engaging in this occupation. Its authors are J. C. Folger, Assistant Secretary International Apple Shippers' Association, and S. M. Thompson, formerly Fruit Crop Specialist, U. S. Department of Agriculture. It is edited by L. H. Bailey, the well known authority on horticulture.

If you are interested in obtaining a copy of this valuable book send us \$3.50 and we will have same forwarded to you. Remit by postoffice money order or check to

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Grower's Share from Car of Apples

(Continued from page 8)

boxes 175s and smaller. You will see that the prices realized were absolutely, if anything, even above the market on the day they were sold.

"We managed to get you what we consider an excellent price. However, that does not alter the fact that the price you eventually got seemed outrageously small, but here is where we are up against a stone wall. We cannot make railroad rates; we cannot make rates for warehouses. The only thing we could do to help the game along would be to reduce our commission. However, as our commission is really the smallest part of your expense account it would not make much difference in the result obtained.

"ANOTHER thing I wish you to notice is the matter of advance. This money which we advanced, not only to you, but to other growers early in the season, and some of it we do not get back here until almost six months after the advance was made, yet for this we made absolutely no charge in the way of interest to shippers. When you consider that in selling a car of apples amounting to over \$2000 we take a chance here also in trusting this advance out, and not only once, but a great many times during the year we do not get paid—a thing that has to be charged to our overhead—by people failing or who for some other reason do not pay their bills you can see for yourself what we are up against at this end.

"It certainly is a rotten state of affairs when a car of fruit is sold for over \$2000 and the poor grower does not even get 50 per cent of what it was sold for. Our charges of ten per cent may seem a little high to you. However, we have found through our efficiency accountants that it costs us practically 6⅛ per cent to conduct our business, so you see we do not make so much money after all. In fact we have our hard years, but this will hardly interest you. The thing that interests you is your own business and I know that you cannot go on and do business and make a decent living for yourself and your family unless you have the proper encouragement and proper support from this end."

Records of apple production costs will be kept in several orchards about Yakima this year by J. N. Miller, from management specialist of Washington State College extension service.

▲ ▲ ▲

Hubam clover is being widely advertised, but under Oregon conditions it is not likely to produce much seed, as it matures too late except in the warmest localities.

There are still a few of those good, dry Westpine apple boxes left

ALTHOUGH the demand for Westpine apple boxes has been unusually heavy this fall, there are still a few left. In them your crop will safely reach the market.

Westpine apple boxes are dry. All summer the lumber was in piles. Now it is thoroughly seasoned.

Westpine apple boxes are the best your money can buy. They are made in modern box factories. They take nails without splitting—and hold them. They will stand the gruelling test of storage and the weaving motion of transportation.

Protect your crop, your profits. Use Westpine boxes. Buy them now!

If you have not received your copy write today for "The How and Why of Good Wood Boxes," a handbook on proper box construction and nailing. FREE! It contains reports of U. S. government tests on apple boxes and other valuable information.

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Boise Payette Lumber Co.....Boise, Idaho.	Potlatch Lumber Co.....Potlatch, Idaho.
Deer Park Lumber Co.....Deer Park, Wash.	Shevlin-Hixon Co.....Bend, Ore.
Dewey Lumber Co.....Polson, Mont.	Union Box Co.....La Grande, Ore.
W. H. Eccles Lumber Co.....Baker, Ore.	Wilson and Cahill.....Spokane, Wash.
Grande Ronde Lumber Co.....Perry, Ore.	White Pine Lumber and Box Co.....
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2205 First Avenue So., Seattle.

Fruit Standardization and Inspection

(Continued from page 15)

secretary. The use of our service is purely voluntary. Our men make no inspections except upon request.

This is the situation in most of the states which have inspection services, but not in all, and I want to leave the suggestion with any of you who may be contemplating legislation providing for mandatory commercial inspection that I know of no plan of co-operation now in effect anywhere under which the federal government attempts to assist a state in the administration of its police laws, unless it be in the case of the food and drug act, where many states are operating under legislation for the control of interstate business which is identical with the act passed by congress for the regulation of interstate business. We cannot escape the feeling that states which set up mandatory shipping point inspection services are increasing the difficulties which will confront us when the fruit and vegetable industries finally induce congress to provide machinery for the issuance of a United States certificate at shipping point.

It is not the province of our bureau to agitate for any sort of public or legislative action. We do what congress directs us to do. Congress, in turn, does what you want done. If you want anything done to help in fruit and vegetable marketing, and state your wants to those who have authority to deal with them, congress will be very likely to call upon our department for its views and so the way will be opened for such aid as we can give in working out your wishes.

REJECTIONS—When shippers discuss our inspection service, they usually seem to have most prominently in mind its usefulness or lack of usefulness in dealing with unjust rejections. They lament the fact that the certificate which we issue, even when favorable to their contention, does not always enable them to force acceptance. They feel keenly the lack of any machinery to force the acceptance of deliveries which they believe to be good. We realize that no inspection certificate standing alone, unsupported by any further machinery can wholly fill the bill although it is the greatest help yet devised. When honest men have an honest difference of opinion, our certificate usually furnishes a satisfactory basis for prompt settlement out of court. If a shipper cannot come to terms with the receiver, and can afford to take the time and money to fight in the courts for his rights, he will find our certificate almost invaluable if it supports his contention.

Time and space forbid an attempt to describe here the machinery which we believe would be effective in handling the matter of unfair rejections. I will say no more than that we have thought over the

question pretty carefully and believe that if congress ever asks us for a plan of procedure we will be able to suggest something which will fit in very nicely with a comprehensive inspection service, will put a premium on honesty and fair dealing and a very deterrent penalty on the shyster and the crook.

There is one very important point connected with this whole question of grading and inspection which I doubt if many of you have ever considered. Each house of congress has a certain number of major and minor committees. Agriculture and appropriations are major committees in each house. The membership of all major committees is selected by party affiliation and by seniority of service, not by occupations nor by the character of the constituency represented. Thus I have met on the committees handling agricultural matters, one man representing a district in the city of Chicago; another from a Pennsylvania coal and oil district; another representing a manufacturing constituency in New England; and so on. There are as many representatives from consuming districts as there are from farming districts, and since more than half our population is now in towns and cities, there will always be more consumer representatives than others. I have sometimes discussed and defended our estimates for appropriations for market news, grading and standardization and inspection work on fruits and vegetables before committees which did not contain one man whose constituents were particularly interested in the production of these commodities. Listen to the questions these men ask when I try to explain to them the importance of the sort of work which we are discussing:

Isn't there a great volume of farm products which does not meet the requirements of the grades you recommend?

Isn't a great deal of this produce which falls below your grades good food for the poor people in cities and towns?

Wouldn't the ungraded fruits be cheaper for them than the carefully graded stuff?

Isn't it true that your work is all designed to get the grower higher prices by catering to the rich?

Isn't the net result of all this grading business to keep food off the market?

Doesn't all this sort of work result in a needless increase in the cost of living, especially for the poor?

THESE are not the idle queries of politicians talking to the galleries. They are questions for the serious consideration of economists. They must be answered and answered right. I believe that on behalf of our bureau I have made the only answer which will stand the test of time. I have defended our work and asked continued appropriations on the

ground that we never have and never would be a party to keeping any food off the market which could be sold at any profit to the grower, no matter what its grade or lack of grade. Are we all standing together on that platform, as we must stand if we are to defend either our service or our regulatory work as sound and in the interest of the public rather than of a class?

Today one state forbids by law the shipment of any car of potatoes which is below the United States No. 2 grade, except by special permission of the state department of agriculture, and this has never been granted. One man was convicted and fined for shipping a car of cull potatoes to himself at a market outside the state. They were shipped under no false or misleading mark, brand or designation. Our bureau is pledged to congress not to stand in the way of such a shipment.

Please turn your minds for a moment from cull potatoes to cull apples. Your reputation has been made on the quality and integrity of your standard grades and packs. By all means preserve their integrity. Do not debase them. Let them mean all that they have ever meant. But through my mind there runs a query like this: would the man who buys extra fancy on a fruit stand in Boston buy any less because a drought stricken farmer in North Dakota or a miner in the Rockies was eating a pie which his wife made from apples like those now in your cull pile?

Would it not be possible in many seasons, of course, not always, to ship at some profit to the grower a good many apples which you do not ship? Has your grower no need for those extra dollars? Is it a wild flight of fancy to suggest that the money which could have been taken out of some cull pile this year might have made the difference between sending the boy to college and being not quite able to send him? I confess that I am an "honest to goodness dirt farmer." When I am home my feet are muddy every time it rains. My sympathy is with the grower, for I share his struggle in trying to make the farm pay.

Without touching your standard grades, perhaps outside your standard package, but under designations and marks neither false nor misleading, work out a plan for selling whatever your market will take, bringing back to your growers every dollar which their crops can be made to bring. That is what congress expects us to advocate. That is good morals and sound economics.

It is said that water glass more perfectly seals cut ends of growing shoots than grafting wax, tar or paints.

▲ ▲ ▲

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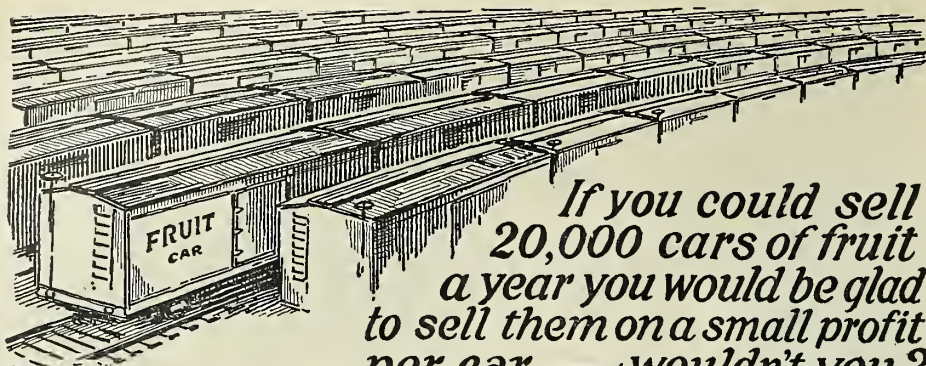
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That is exactly our position. Selling fruits on a colossal scale, we can afford to sell at a very small profit on each lot—relying on *quantity* to make our profit.

The smaller our profit on each sale, the larger the net proceeds and the more money you receive.

In addition, when we sell your fruit you add further to your profits because the auction is the most direct route to the consumer.

Add to the extra profits you make by our low selling costs, the additional profits by reason of the fact that we sell your crops at the highest market price—and you have a nice profit over private sales methods.

But these are not the only advantages of selling through us. On top of the other benefits you know—and know without a doubt—that you receive every cent your fruit brings, outside of our small selling commission. For the selling price is printed in the New York Daily Fruit Reporter. Remember, Publicity is a corner stone at Auction.

Another thing, you don't have to wait for your money—you are guaranteed check in full settlement 24 hours after sale.

Write us for interesting booklet "More Dollars for Fruit Growers."

The Fruit Auction Co.

Established 1896
202-208 Franklin Street, New York City



Without Kayso

With Kayso

KAYSO makes the Spray spread & stay

KAYSO—the casein spreader and adhesive, insures a complete covering of poison on your maturing fruit. There are no unprotected areas when KAYSO is used.

Give your trees KAYSO protection now.

The Summer months are the time of heaviest loss from worms and disease.

KAYSO means effective spraying at low cost.

See your dealer or write to us today.

CALIFORNIA CENTRAL CREAMERIES

425 BATTERY STREET, SAN FRANCISCO

NEW YORK

CHICAGO

LOS ANGELES

Apple Grading Rules

(Continued from page 11)

Style of Pack—Diagonal	No. in Box
2x2 wide 4-5 long, 4 tier deep.....	72
2x2 wide 5-5 long, 4 tier deep.....	80
2x2 wide 5-6 long, 4 tier deep.....	88
2x2 wide 6-6 long, 4 tier deep.....	96
2x2 wide 6-7 long, 4 tier deep.....	104
2x2 wide 7-7 long, 4 tier deep.....	112
2x3 wide 7-8 long, 4 tier deep.....	120
2x2 wide 8-8 long, 4 tier deep.....	128
3x2 wide 4-4 long, 5 tier deep.....	100
3x2 wide 5-4 long, 5 tier deep.....	113
3x2 wide 5-5 long, 5 tier deep.....	125
3x2 wide 6-5 long, 5 tier deep.....	138
3x2 wide 6-6 long, 5 tier deep.....	150
3x2 wide 7-6 long, 5 tier deep.....	163
3x2 wide 7-7 long, 5 tier deep.....	175
3x2 wide 8-7 long, 5 tier deep.....	188
3x2 wide 8-8 long, 5 tier deep.....	200
3x2 wide 9-8 long, 5 tier deep.....	213
3x2 wide 9-9 long, 5 tier deep.....	225
3x3 wide 5-5 long, 6 tier deep.....	180
3x3 wide 5-6 long, 6 tier deep.....	198
3x3 wide 6-6 long, 6 tier deep.....	216
3x3 wide 7-6 long, 6 tier deep.....	234
3x3 wide 7-7 long, 6 tier deep.....	252
5 straight pack 8 long, 5 tier deep.....	200
5 straight pack 9 long, 5 tier deep.....	225

Style of Pack—Diagonal	No. in Box
3x2 wide 3-3 long, 4 tier deep.....	60
3x2 wide 4-3 long, 4 tier deep.....	70
3x2 wide 4-4 long, 4 tier deep.....	80
3x2 wide 5-4 long, 4 tier deep.....	90
3x2 wide 5-5 long, 4 tier deep.....	100
3x2 wide 6-5 long, 4 tier deep.....	110
3x3 wide 4-4 long, 5 tier deep.....	120
3x3 wide 5-4 long, 5 tier deep.....	135
3x3 wide 5-5 long, 5 tier deep.....	150
3x3 wide 6-5 long, 5 tier deep.....	165
3x3 wide 6-6 long, 5 tier deep.....	180
3x4 wide 6-5 long, 5 tier deep.....	193
4x3 wide 6-6 long, 5 tier deep.....	210
4x3 wide 7-6 long, 5 tier deep.....	228
4x3 wide 7-7 long, 5 tier deep.....	245

DIMENSIONS OF STANDARD APPLE AND PEAR PACKAGES

The standard size of an apple box shall be 18 inches long, 11½ inches wide, 10½ inches deep, inside measurement.

Pear—18x11½x8½ inches, and outside length 19¾ inches.

¾ inch suitcase pack Peach-Plum—18x11½x3½ inches.

APPLE BOX MATERIALS
Ends—¾x10½x11½, 2 pieces..... 20 to Bdl.
Sides—¾x10½x19½, 2 pieces..... 40 to Bdl.
T. & B.—¾x5½x19½, 4 pieces..... 100 to Bdl.
Cleats—¾x¾x11½, 4 pieces..... 100 to Bdl.
32 6d nails commonly used per box.

RULES FOR ESTIMATING PAPER AND CARDBOARD

	Apples	Pears
Wraps for packing		
100 boxes.....	50 lbs.	25 lbs.
Lining for packing		
100 boxes.....	7½ lbs.	7½ lbs.
Cardboard for packing		
100 boxes.....	16 lbs	

RULES FOR USE OF PAPER

Apples—
Use 8x8 for 188-299-213-225 Packs.
Use 9x9 for 175-163-150-138-125-113 Packs.
Use 10x10 for 112-104-100-96-88 Packs.
Use 11x11 for 80-72-64-56 Packs.
Use 12x12 for 50-48-41-36-32 Packs.

Pears—
Use 8x8 for 210-228-245 Packs.
Use 9x9 for 193-180-165 Packs.
Use 10x10 for 150-135-120-110-100 Packs.
Use 11x11 for 90-80-70-60 Packs.

CEMENT COATED NAILS
Per keg: 4d, 55,000; 5d, 39,700; 5½d, 31,000; 6d, 23,600.

Prune Festival Dates

The Prunarians of Vancouver, Wash., are to hold their big Prune Harvest Festival on October 19, 20 and 21. They expect about raising \$3200 with which to defray expenses of the festival. An elaborate program has been planned. The first day is to be known as Salem Cherrion day, the second as Berrian day and the third as Fraternal day.

Kindly tell the advertiser you read his ad here.

Washington Meeting

THE Washington State Horticultural Association held its annual summer meetings last month, sessions being held two days at Yakima and two days at Wenatchee. The summarized report which follows was very kindly furnished by M. L. Dean, secretary of the association.

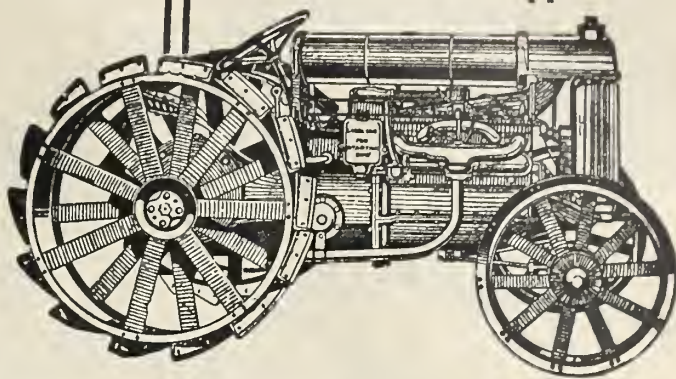
The sessions opened at Yakima, August 15, with a good attendance and President H. L. Geary in the chair. County Agent William Meikle gave a very complete discussion on "System of Orchard Planting" and pointed out the importance of giving better space to trees when planted so that they might have room for development. This development can only be attained by having suitable room for root development as well as for expansion and spreading of the top. He enumerated many cases where maximum yields were secured from trees having not less than thirty feet space on the square while trees planted more closely, even though more to the acre, yielded less. He earnestly advised not to plant standard varieties any closer than thirty feet. Many questions were asked and a considerable discussion was brought out touching many vital points.

Edwin Smith of Wenatchee explained and discussed the importance of "Broader Markets for the Northwest Apples" and enlarged upon the possibility of increased export trade. He explained his observations on imported facilities which are being inaugurated by several leading ocean going transportation liners which makes it possible for fruit to be in storage during the entire trip. Many apples which were sent to the European markets last year, even though they were of small size, brought a better price than the larger size in the local markets and he urged the importance for further investigation by growers by sending the smaller sizes to the export trade.

E. G. Wood of Pullman, discussed the question of "Orchard Production," giving highly informative and helpful facts and pointers. E. J. Newcomer of Yakima, emphasized the importance of closer observation of the atmospheric temperature in the spring, when growers are fixing the date for the first cover spray. He pointed out the fact that weather conditions had much to do with the rapidity of the hatching of codling moth eggs and if the season was warm the eggs hatched much more rapidly than during cool weather and it was important that the grower study the thermometer carefully.

W. D. Whitcomb discussed the "Relative Growth of the Apple in Relation to the Frequency of the Cover Spray" and pointed out importance of closer attention by the grower to this matter. John Peters of Wenatchee, gave a very important discussion on the problem of thinning of fruit in order to get the best percent-

Fordson



\$395

F. O. B.
DETROIT

Plows
Mows
Harrows
Threshes
Pumps water
Grinds feed
Fills the Silo
Runs Portable
Mills
Does all kinds
of draw bar
and belt power
work.

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The way to better crops, shorter working hours and greater profits.

Fordson saves time, labor and money in taking care of every power job.

The original cost is low, costs little to operate, is powerful, durable and dependable.

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Dept. B, East 11th and Division Sts., Portland, Oregon.

Please send me information on Fordson Tractors. (Mark X in square opposite literature or service desired.)

- ☐ Fordson Tractor Manual.
☐ The Fordson at Work.
☐ Free Demonstration. (State purpose for which tractor is intended.)

If you own a tractor state what make.....

Name.....

Address.....

Arrange NOW for Free Demonstration



Carpenter's patented No. 1 and No. 2

Wenatchee Fruit and Vegetable

PICKING BAGS

Made of heavy canvas, reinforced with leather, stitched with waxed harness thread. Halter webb attached, as suspenders, to a steel frame. carries the load from the shoulders.

The following prices are postpaid to any place. The original or No. 1 is \$2.25; the No. 2 at \$2.50, is same as No. 1 except leather covers entire frame. Dozen lots and more—special prices.

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ST. PAUL, MINN.

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for
PURITY
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GERMINATION

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ROSES
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FRUIT & SHADE
TREES
is Now Ready
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Sow seed that is
KNOWN to give the
earliest, most vigorous and
heaviest yield.

Through testing and experimenting
the Portland Seed Co. has produced
the best crop seeds for this territory.

New Crop

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Clovers, Grains, Grasses**

Selected re-cleaned farm and field seed at
lowest market prices. Special mixtures for
wet land—dry land—burns—permanent hay
crops and pastures.

**Cover Crops for Orchards
Dry Land Pasture Mixtures**

WRITE TODAY FOR SAMPLES.
(Note their purity and weight)

Or send in your order direct.
We guarantee full value for the
money sent and will give your
inquiries our prompt
and careful attention.

Get all
the Cream
with a
Sharples
SEPARATOR
—Catalog on Request

PORTLAND SEED CO.
PORTLAND, OREGON TRADE MARK

age of extra fancy. He also pointed out the benefit of thinning to increase the regular annual production of trees.

Ex-President Wiggins of Toppenish, gave a very interesting 30-minute talk on his observations through the fruit section of the middle east and west and pointed out the importance of western growers paying more attention to the maintaining of high standard of grades if they expected to hold their rank with the keen competition of the eastern fruit growers. In many sections large orchards are being planted and closer attention is being given to up-to-date harvest and packing methods—all of which impresses the importance of high standards for western fruit.

Roy Larson, soil specialist, gave a discussion on the "Importance of Soil Fertilization for High Production." Professor O. M. Morris of Pullman, gave an interesting discussion on the "Importance of Proper Spacing of Trees and Proper Thinning of the Trees by Pruning in Order to Get Maximum Production of High Grade Fruit."

This program covered the two days, August 15-16, at Yakima, the meetings being held in the forenoon of each day at the Commercial club rooms with an attendance from 75 to 200. The afternoons were devoted to trips through the valley, visiting many orchards and observing and discussing methods of culture and tree management on the trip. At Yakima there were about 20 Wenatchee visitors in attendance at the meetings and at Wenatchee about the same number of Yakima people attended the sessions.

Thursday the visitors took a trip over Blewett Pass from Yakima to Wenatchee which was much enjoyed by all participants. The meetings in Wenatchee, August 18-19, were conducted under the same plan, having program discussion in the forenoon and orchard visits in the afternoon of each day. D. F. Fisher, of the United States department of plant diseases, displayed some apples which had been wrapped in the oil wraps and placed in storage, being still in very fine state of preservation.

Announcement for
Poultrymen

"Salmel" Fish Meal

First deliveries now arriving from
our plants in Alaska.

For Sale by Your Dealer

**MARINE PRODUCTS
COMPANY**
INC.

TACOMA, U. S. A.

**Rubber Stamps for Fruit
Boxes**

Write for Sample and Prices to

ROGERS COMPANY

Gerlinger Bldg. PORTLAND, ORE.

Write

**Salem Nursery
Company**

428 Oregon Bldg.

Salem, Oregon

FOR PRICES ON LIST OF
TREES AND PLANTS
NEEDED FOR SEASON'S
PLANTING

**RELIABLE STOCK
DELIVERED**

Additional Salesmen Wanted

BEST HE HAS SEEN

Rockridge Farms,
Richmond, Mass., July 23, 1922.

BETTER FRUIT Publishing Co.,
Portland, Oregon

GENTLEMEN: Will you send
copies of BETTER FRUIT to the men
whose names are enclosed. I have
already told them that it is by far
the best fruit paper I have seen.

Yours truly,

W. R. GIBBS

Idaho Prune Grades

INSTRUCTIONS regarding the sale and shipment of Italian prunes have been written into the rules governing the grading and standardizing of farm products by the Idaho Department of Agriculture. Shipments should be made either in basket packs or suit case packs. Other suitable containers are recognized if the same rules and regulations as to marketing and grades as in other packs are strictly adhered to.

In order to size the prunes carefully, grading tables must be used. They must be "so placed and operated that all prunes which will pass through a one-inch rigid bar screen will be given an opportunity to do so. Great care must be exercised in establishing the incline of a grading table in order to carry this feature of the regulations into effect. Inspectors are directed to report to the department any infringement which may come under their notice.

"Packed prunes shall be free from any insect bites and reasonably free from any insect injury, which noticeably affects the appearance of the prune, large scars or russet marks, and soft or prematurely ripe prunes. Cases must be well made, as nearly square at corners as possible, and well nailed with five-penny cement coated nails. The boxes should be clean and should contain the grower's or packer's name, the words 'Idaho Italian Prunes' and 'Net Weight Not Less Than 20 Pounds,' plainly stamped or marked on the end.

"Prunes in basket packs shall be packed with stems up in the two bottom layers and stems down in the top layer. As many stems as possible should be left on the fruit, but this feature is not compulsory. Prune paper must be used in all cases.

"The suit case pack shall be tightly packed and free from limbs, leaves or other refuse. The pack shall not contain prunes smaller than what will pass over a one-inch rigid bar screen, and in no case shall larger prunes be removed from a suit case pack. While the suit case pack is designed as orchard run, it is intended that the general quality of the prunes will not be inferior to a basket pack. The size of the standard suit case shall be 18 inches long, 11½ inches wide and 3½ inches high, inside dimensions."

The W. W. Rosebrough company of Salem, Ore., is now operating in its new hollow tile building erected on the site of their old building, which was destroyed by fire early in the summer. The company specializes in the manufacture of all sorts of canning and fruit packing machinery and equipment, prune graders and processors.

Pears as Winter Fruit

D'ANJOU winter pears are in a fair way to get into the famed Oregon winter fruit class, according to reports of the Hood River Experiment Station.

Storage tests conducted by Leroy Childs and Gordon G. Brown of that branch station, indicate that the Hood River d'Anjou has the long keeping qualities that characterize winter fruits. The tests further show that the growers have been picking their d'Anjous altogether too early to get full advantage of these unknown qualities.

Lower valley pears of the winter variety picked September 3, were placed in storage by the station investigators. Upper valley pears picked September 22 and October 1 and 8, were also stored in the tests.

The first picked fruit is badly shriveled and unattractive, the September 22 picking is slightly shriveled, but retain good flavor, and October 1 picking is plump and fresh-looking, while the October 8 picking is exceedingly firm.

"In tonnage, appearance and keeping qualities, the pears picked on the last dates are far superior to the others," says the report. "This test explodes the theory that pears of this variety should be picked a little green. The fruit sizes rapidly just before it ripens, and this tonnage feature is one that should appeal to growers. The average weight gained by these pears was about an ounce each."

Hood River fruit growers and shippers declare that the experiments may result in a renewed fruit industry that will bring many thousands of dollars into the state.

Selling the Boxed Apple Abroad

(Continued from page 6)

This development of the intercoastal business should be for the immediate future and it is certainly to be hoped that one or the other of the American companies will shortly construct a few ships for this business.

Next in importance to the proper transportation of fruit comes the question of the cost of transportation. The rate from the Pacific northwest to the Great Britain ports now is a dollar a box. The steamship companies are claiming that they have a haul but one way and that they cannot reduce their rates until there is a back haul. With keen competition among several steamship companies for the Pacific coast business, the shippers, if they use their heads and work together, should crowd down the rate somewhat at least.

Important steamship companies have announced that the \$1 a box rate on apples to Europe will be unchanged this season.

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The ability to sell is the first requisite in catalogs, booklets or printed literature of any kind that is intended to SELL your product.

Every piece you send out can be compared with salesmen, traveling by mail. To succeed, they **MUST** have **SELLING FORCE**. They must be attractively printed. But however superior they may be as samples of printing, they are, like salesmen, dear at any price, if they don't SELL.

Putting this indispensable selling force into your sales literature is not a one man job. It requires the service of specialists. A booklet or catalog should be planned by a man who knows something about selling, advertising, art, engraving and printing. It should be written by a man with selling experience, illustrated by artists who work in close co-operation with writers, engravers and printers, and produced in a printshop that is equipped especially for advertising work and manned by skilled specialists.

It is just such a specialized service that The Arcady Company offers you. Let us show you what real printed salesmanship may do for your business.



In this Sign We Advertise

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Ridley, Houlding & Company

COVENT GARDEN, LONDON

Send your consignments of Apples and Pears to us. We will handle them to advantage for you.

CABLE ADDRESS: BOTANIZING, LONDON

Codes: A. B. C. 5th Edition and Modern Economy

See Us At The FAIR

With our famous

Pacific Drying Stove

and

House-Heating Furnaces

We are now operating in our new building and can care for your wants promptly.

W. W. Rosebrough Co.

17th and Oak Sts.
Salem, Oregon

Checking Apple Deliveries by Weight

(Continued from page 7)

(gross weight of fruit, including the bin minus the weight of the bin).

4. Total test weights.

COMPUTATION METHODS—It is the duty of the office clerk in charge of receipts to ascertain what percentage the fruit in the sample is of the total fruit on the load and to compute the weights of the various grades and sizes. This percentage is found by dividing the total net weight of the sample by the net weight of the fruit on the load. For example:

Assume that 163.2 pounds is the net

weight of the whole sample and that 4,000 pounds is the net weight of the load of fruit. To determine the percentage of test: 163.2 divided by 4,000 equals 4.08 per cent.

Having determined the percentage of test, it is a comparatively simple matter to compute the total weight of each grade and size in the lot from the results of the test, as reported by the test clerk under "Test Weights" on the sampled-fruit receipt. This can be done either by dividing the test weights by the percentage of test, or by multiplying the test weight by the reciprocal of the percentage of test, as shown in Bulletin No. 1006.

Now, the percentage of test is 4.08 per cent. Suppose that the Extra Fancy (36-125) test weight is 50.2 pounds; Fancy (36-125) test weight, 75.6 pounds; "C" grade (36-163) test weight, 37.4 pounds. To compute the weights of the various grades in this size group by the percentage division method:

$$50.2 \text{ lbs.} \div 0.0408 = 1,230.40 \text{ lbs.}$$

$$75.6 \text{ lbs.} \div 0.0408 = 1,852.94 \text{ lbs.}$$

$$37.4 \text{ lbs.} \div 0.0408 = 916.66 \text{ lbs.}$$

$$163.2 \text{ lbs.}$$

$$4,000 \text{ lbs.}$$

To determine the weights by the reciprocal-multiplier method one makes use of a special table of reciprocals presented and explained in Bulletin No. 1006.

CONDENSED OPERATING SCHEDULE—A condensed analysis of the application of the special forms devised for sampling apples by weight, together with a brief outline of the practices involved

arranged in order of their intended use, follows:

Loose fruit receiving room:

1. Loose fruit unloaded.
2. Gross, tare, and net weight of the fruit, including the weight of the boxes entered on loose fruit receipt.
3. Sample selected from the load.
4. Sample sent to test room, remainder of load trucked to packing room.
5. Duplicate loose fruit receipts sent into office daily, original given to the grower, triplicate attached to test box.

Sample test room:

1. Sample sorted and weighed, classified as to grades and sizes.
2. Test weight computations entered on duplicate sampled-fruit receipt.
3. Test weights entered on sampled-fruit receipt.
4. Loose fruit receipt number entered on sampled-fruit receipt.
5. Sampled-fruit receipts and triplicate loose fruit receipts sent into office daily.

Office:

1. Sampled-fruit receipts and loose fruit receipts received daily.
2. Numerical order of sampled-fruit receipts and loose fruit receipts checked, then rearranged in alphabetical order. Missing receipts noted.
3. Loose fruit receipts covering a given test withdrawn from temporary file and placed in permanent file.
4. Test clerk's computations checked on duplicate sampled-fruit receipt.
5. Percentage of test determined and noted.
6. Reciprocal of percentage of test determined and noted.
7. Extensions of the total weights made on the sampled-fruit receipt, classified as
8. Original copy of sampled-fruit receipts sent to growers, duplicate copy entered on register of sampled-fruit receipts, then placed in permanent file.
9. Register of sampled-fruit receipts arranged in alphabetical order.
10. Sampled-fruit receipts entered daily on register of sampled-fruit receipts.
11. Footings totaled on register of sampled-fruit receipts at the close of the packing season. Weights reduced to boxes.
12. Reconciliation of fruit deliveries sent to growers at the close of the packing season.

13. Account sales arranged according to varieties and numbered.

14. Footings of the register of receipts brought down on the account sales at the close of the packing season.

15. Upon closing pools entries are made on the account sales, setting forth the net average prices of the fruit, classified as to grades and sizes, extensions made in the amount column, duplicate copies sent to the growers, and original copies held in the permanent file.

Kindly tell the advertiser you read his ad here.

WASHINGTON

DATES for the second annual Pacific Northwest Fruit Exposition at Seattle, have been changed to November 11-19, about two weeks later than first proposed. It was decided also to hold the exposition in the Bell street terminal instead of the arena, as at first planned. Mrs. Winnie Braden, general manager, reports that applications for space have already been received.

TOTAL cherry shipments out of the Wenatchee district were 165 cars as compared with an estimated crop of 140 cars. Most of these went by express and brought a good price to the grower though shippers in some instances lost money on the deal. Total shipments of apricots from this district were about 110 cars, most of which went out by freight.

IT IS REPORTED from Yakima that a new pear seems to have appeared as a sport on a Bartlett tree in the orchard of Arthur Karr. One leader of the tree is bearing fruit much larger and more bell-shaped than the ordinary Bartlett. Mr. Karr thinks the quality is also better.

AT A RECENT meeting of cranberry growers at Ilwaco, it was decided to incorporate the Pacific Cranberry Exchange to establish better marketing methods. The growers will belong directly to the exchange instead of being members of affiliated associations.

S. M. BAYES reports a gross return of \$2500 from three acres of Cuthbert raspberries and one acre of Munger blackcaps planted in the spring of 1921 in the Yakima valley. He thinks his return will be \$1000 an acre next year and may greatly enlarge his plantings.

VERY heavy dropping of peaches and prunes was reported from some Yakima valley districts last month. The hot dry weather was blamed, though E. S. Robertson, formerly an extension horticulturist, gave the view that irregular application of water was a contributing cause.

INDEPENDENT fruit growers of the White Salmon valley have organized a shipping agency to handle and ship their own fruit. The new organization will operate under the name of Star Fruit company. Avery R. Hayes of White Salmon, R. J. Bates of Burdoin Heights and Henry Roberson of Husum are trustees of the company.

H. H. STARKS, Peshastin apple orchard owner, thinks he has the record for single tree production in the northwest. From a 12-year-old Jonathan tree he removed 3,366 apples while thinning and left about 15 boxes still on the tree.

THE 1922 raspberry crop around Puyallup, according to W. H. Paulhamus, president of the Puyallup and Sumner Fruit Growers' association, yielded good returns to the growers. Though some yields were only 75 and 80 per cent of normal the prices received were excellent, averaging more than \$2 a crate.

ANNOUNCEMENT has been sent out by the executive committee of the North Beach Cranberry Fair that its annual exhibition will be held in Sylvan Hall, North Beach, on September 28 and 29.

W. G. ALLEN of Salem, Oregon has been elected president and A. F. Pfeiffer of Puyallup, Washington, has been chosen secretary of the Pacific Northwest Canning company. This concern recently purchased the Puyallup, Sumner and Albany, Oregon, plants of the old Puyallup and Sumner Fruit Growers Canning company.

THE Spokane valley apple packing school opened in the warehouse of the Spokane Valley Growers' Union at Opportunity on August 24. It is conducted as an extension of the Washington State college. F. G. Wood is in charge.

JOHAN G. WELCH, who not long ago resigned as assistant sales manager of the Northwestern Fruit Exchange of Seattle, has joined the executive force of the North American Fruit Exchange.

OREGON

ORCHARDISTS of the Dallas district recently met and announced fall wage schedules for prune harvest help as follows: Pickers, 6 cents per box, with 2-cent bonus for season's work; help in dryer, \$2.50 a day and 50-cent bonus; dryers, \$5 per day; firemen, \$4 per d

DR. C. C. CORBETT, chief of the federal bureau of horticultural and pomological investigations, and Professor L. B. Scott, in charge of nursery investigations, visited the Southern Oregon Experiment Station, at Medford recently, particularly to go over the work of Professor F. C. Reimer. They are co-operating in his studies of blight-resisting pears.

ORGANIZATION of the Umpqua Valley Canning Company, company, with a capital stock of \$25,000 was recently effected at Roseburg. The officers are these: John Busenbark, president; W. O. Clinger, vice-president; A. J. Geddes, secretary-treasurer; Frank P. Norton, manager; Messrs. Busenbark, Clinger Norton, D. B. Bubar and Dr. G. W. Bradburn, directors.

WHEN the shipping situation became serious last month it was announced that the Oregon Growers contracted to turn over all unsold Bartlett pears to be canned by the California Packing Corporation under the Del Monte brand. The two organizations are to share profits from canning and selling the Bartletts.


THE Drager Fruit company at Salem, has this year evaporated a heavy tonnage of loganberries which are being packed in eight-ounce cartons, fitted with glassine cover to make them air-tight. The company also dried quantities of cherries which are to go out in 25-pound boxes.

WORK has been started at Hood River on the new warehouse for the Hood River Spray company. It is to be 32 by 96 feet in ground dimensions, with lower story constructed of tile and an upper story of frame construction. A steadily increasing demand for products of the company made necessary the new building.

LAST month the commodious new warehouse of Sgoble & Day, New York fruit distributors, was completed at Medford. It is a frame structure 60 by 104 feet and 22 feet in height, fully provided with modern machinery. Harry Stoltz is foreman of the plant. Crawford C. Lemmon is the Medford representative and manager for the firm.

LE ROY CHILDS, superintendent of the Hood River Experiment Station, has been designated to deliver an address on spraying before the annual meeting of the American Pomological Society at Council Bluffs, Iowa.

J. CAIRNS, of Edinburgh, Scotland, head of the Scottish Co-operative Wholesale Society, Ltd., one of the greatest co-operative buyers organizations in existence, visited Salem last month. His organization buys large quantities of fruit from the Oregon Growers. He expressed himself as much impressed with what he saw of the fruit plants and orchards here.



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The college of Literature, Science and the Arts with 22 departments.

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SHENANDOAH, IOWA

THE Rogue River Canning company at Medford, under management of S. S. Bullis and R. D. Hoke, has greatly expanded its operations this season, expecting to quadruple the output of last year. Its plant was rushed to completion last year in time to handle only about \$50,000 of business.

FROM one Royal Ann cherry tree James S. Burford, Cove farmer and fruit grower, obtained 747 pounds which he sold for a total of \$52.79.

THE THIRD annual Washington County Prune chautauqua was held at Forest Grove, on August 19. Several experts gave talks and the growers visited some of the better prune orchards of the district.

ARTHUR Hedeon of Portland, has invented a prune picker which many think will help solve the problem of handling prunes during wet weather, when the crop might otherwise largely be lost.

CALIFORNIA

GEORGE F. BOHLKENS has resigned as assistant to L. O. Haupt, horticultural commissioner of Kings county, and is now sales manager of the San Joaquin Nursery. Lloyd C. Bowman of Hanford succeeds Mr. Bohlkens.

IT WAS announced recently that J. B. Coplen, owner of a 440-acre alfalfa ranch at Corona, has decided to put in 200 acres of Eureka walnuts and 100 acres of grapes of various varieties.

AT WATSONVILLE a new stock company headed by C. W. Ramsey and F. Scriver is installing an extensive plant to make apple butter, cider, vinegar and other similar products.

THE first car of peaches left the San Joaquin valley about July 22. The first carload shipment of Elbertas was sent from Modesto on July 31. Two cars of fresh Elbertas were shipped from Denair on August 3.

FROM a single tree in the orchard of Giblin Bros., near Yuba City, 1100 pounds of cherries were picked. The tree is nearly 50 feet tall and has a spread of 40 feet.

IT IS THE claim of J. E. Hosmer of Modesto, that he this year harvested at the rate of 50 boxes of thornless mammoth blackberries from one-year-old plants.

F. N. BIGELOW has been appointed chief of state bureau of markets and is stationed at department headquarters in Sacramento.

NEW vineyard plantings in California since January 1, amount to 40,310 acres, according to compilation of the Sun Maid Raisin Growers' organization. This organization is to spend \$2,520,000 in advertising to sell its 1922-23 crop.

CHERRY fruit fly was discovered in Oregon cherries sent into California, according to Lee A. Strong, chief of the bureau of plant quarantine.

A HEAVY prune crop is reported from districts along the Sacramento river.

AN APRICOT tree, said to be 30 years old and belonging to Mrs. Lizzie Hayes of Mountain View, bore 30 boxes last season and almost an equally heavy crop this year.

HARVEST of walnuts in Santa Clara county will begin about October 1. The tonnage to be handled by the Santa Clara packing house of the California Walnut Growers' association is expected to be treble that of any previous season.

THE Virden cannery at Marysville, after a test run on Tuscan peaches on July 31, started its season's operations August 1.

IDAHO

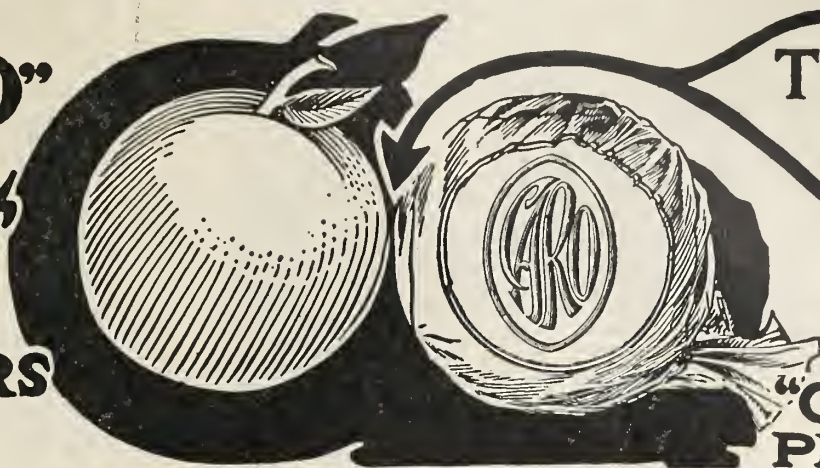
THE apple crop of the Payette valley is reported as normal, with only a few orchards bearing less than a full yield. The prune crop is the best in years and pears and cherries have yielded fully average crops.

POTATO growers at Nampa delayed harvesting in many instances because of a scarcity of help. Then, too, the growers have waited as long as they dared in hope that the railroad strike would be settled and help strengthen the market.

THE state's pear crop will be better than estimated, latest figures placing the total at 73,000 bushels.

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Marketing News of Interest

GOVERNMENT estimate of the commercial apple crop of the United States for 1922 is placed at 33,402,000 barrels, as compared with the crop of 21,204,000 barrels last year. In the August estimate the crops of Pacific coast states were revised but little as compared with the July estimates, printed in some detail in this column. They were all slightly increased. The estimate for Washington was raised from 7,470,000 barrels to 7,750,000 barrels and that for California from 1,623,000 to 1,704,000 barrels. Increases for the other box apple states were insignificant in extent.

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OPENING apple prices were announced at Spokane about three weeks ago. The schedule shows an average reduction of about 50 cents a box under the prices at last season's opening. Jonathans were quoted at from \$1.15 to \$1.65, Newtowns at \$1.25 to \$1.75, Spitzenburgs \$1.25 to \$1.75, Winesaps \$1.25 to \$1.85, and Winter Bananas at \$1.50 to \$2.25.

Growers in the northwest depend chiefly upon eastern demand and export to Europe to move their crop, but this year, it is said, the east will produce an enormous supply. Spokane valley apples last year netted growers an average price of \$1.60 a box, but growers believe that because of the enormous increase in the production they have to accept a trifle less this year.

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THE August crop report for Oregon, as prepared by Federal Statistician F. L. Kent, did not specifically change the July 1 estimate on apples, the forecast of commercial production at that time having been 5645 cars. Pears had been estimated at 1300 cars and the report said of these two forecasts, "the prevailing weather conditions will quite likely reduce these crops." The report further said: "Prunes continue to drop, even in some of the best cultivated orchards and small sizes will doubtless predominate. The production of cherries was much below normal, particularly the Royal Ann crop in the western part of the state."

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IDAHO'S apple crop is about holding its own, the August condition of 80 per cent of normal comparing with a condition of 81 per cent of normal July 1. The forecast is for a total of 4,281,000 bushels, says the state crop reporting service. In the commercial districts—Twin Falls, Boise, Payette and Weiser valleys, and Post Falls and Lewiston in the north—the fruit is developing nicely and promises to be large-sized and of excellent quality. While there will be a fairly good crop elsewhere in the non-commercial districts of the state, it will probably not be as large as last year.

With a forecast of 242,900 bushels, Idaho's peach crop promises to exceed all former records. The condition is 70 per cent of normal compared with 58 per cent a year ago and the 10-year average of 60 per cent. The crop is particularly promising in the Mesa-Council district in Adams county.

Prunes showed improvement during July, but reports received indicate a heavy drop in some sections due probably to the long continued hot weather and to a red spider which has infested some orchards.

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WENATCHEE apple growers are grimly determined that they shall have an ample supply of cars to move their crop. The Wenatchee Valley Traffic association has commenced a vigorous battle for the 15,000 cars estimated as necessary. J. Curtis Robinson, formerly traffic manager with Northwestern Fruit Exchange and also with the North American Fruit Exchange, has been sent east to represent the association.

THE first solid carload of the Wenatchee 1922 apple crop was shipped July 29, from the Wenatchee Produce company. It was billed to Minot, N. D. and consisted of Yellow Transparents, Duchess and Astrachans. It is unusual to begin shipments this early in the season in carload lots. The crop of early apples was unusually large.

AGREEMENTS have been made between the apple growers and the port of Seattle, whereby 1,000,000 boxes of this year's apple crop will move to American and foreign markets by steamers. Of the 1921 crop 375,000 boxes were shipped by boat and in 1919 only 2000 boxes were handled over Seattle docks. This year the apple crop in Europe will be short, and the Washington growers expect to ship 300,000 boxes from Seattle to England.

ONE of the most profitable cherry crops ever harvested in the Wenatchee territory was grown on E. L. Broderick's orchard on less than two acres this year. There are 165 trees in the tract and from these were picked 18 tons of fruit, which was sold in bulk. There were four tons of Royal Annes that brought \$150 a ton, or \$600, and 14 tons of Bings at \$210 a ton, or \$2940, a total of \$3540, or more than \$2000 an acre.

FEW sales of apples were reported at the Apple Shippers' convention at Seattle last month. The largest reported sale was made by the American Fruit Growers at Wenatchee to Steinhart & Kelly of New York, a block of 12 carloads of King Davids being acquired at a price not announced. It was also reported that a lot of Newtowns from Hood River had been sold at \$1.50 for extra fancy. A few deals in Delicious at \$2.50 and Jonathans at \$1.50, with a 10 to 15-cent premium for shipments prior to October 10, are said to have been put through.

MORE than 30,000,000 pounds of prunes will be handled this year by the Oregon Growers' Co-operative association, according to announcement made by officials of the organization. Last year the association handled approximately 7,500,000 pounds of prunes. The association now has 132 tunnel dryers under its control. These will handle about 10 tons per tunnel for the season, or about 2,600,000 pounds. The remainder of the product will come from the private growers, who have their own dryers.

ACCORDING to W. E. Schimpff, cranberry grower and expert of Clatsop County, Oregon, the cranberry crop of his section was not harmed by the long drouth of the summer and will be a profitable one. The eastern crop is below normal.

Washington Growers' Corporation Notes

ON SATURDAY, August 12, a general meeting of the potato growers of the Washington Growers Packing Corporation was held in the lecture room of the association and plans were made for handling the coming crop. J. E. Larson, former manager of this department, was present, made a report on the past year's business, and offered his assistance in any way in which he can be of service to the growers. This division of the organization has its own board, and forms its own marketing plans. An election of officers resulted in selecting the following men: C. S. English, R. E. Gerrard, H. S. Johnson, Emil Hongell, H. E. Engler, George Lawton, T. Jenny, A. H. Lindh, W. B. Chapman, William Mangum, Charles Greely. The

last six men compose what is known as the advisory board, and represent the various communities in the county.

CONSIDERABLE new acreage is being signed up by the association. This includes acreage already listed as too young for bearing, but which will have its first crop this year, and acreage not heretofore listed by the organization. Potato acreage is also being signed up, and it now looks as though this department will be represented by members in every part of the county. This is the second season for this department.

RECENTLY Dr. George K. Link of Washington, D. C., and a party of potato experts, made a brief tour of the principal potato sections of the county and found fields in this county freer of disease than any other section of the northwest. Dr. Link stated that the west side of the mountains is an ideal section for potato production.

CLARKE County Dairymen's association has been formed and is reported to be functioning excellently. Results fully as satisfactory as those obtained through some of the more highly organized associations is claimed by members. Outside of several districts in the county where co-operative creameries or cheese factories are operating, it is expected that fully 75 per cent of the county's cream will be handled through the organization, in the near future.

In order to get this cream, several creamery companies bid against each other, with the result that a premium is paid for cream handled through the organization. This premium is much more than the cost of membership.

The organization is secret. None but members are allowed at the meetings, admittance to which is by pass word. Yearly contracts are signed, and since no penalty for violation of the contract is prescribed, members are on their honor to abide by them. Meetings are held once a month in various communities. Each chapter of the organization is represented by a member duly elected who, with representatives from all the communities, forms the executive board.

WORK of remodeling the prune packing plant of the Washington Growers Packing Corporation is proceeding as rapidly as material can be secured. An early drying season is expected, and plant manager Oliver Jones, is being kept busy preparing the plant for the packing season.

PRUNE crop prospects are brighter, except in a few districts where the rain did not come soon enough to prevent an excessive drop. Conservative estimates place the tonnage that the association will have to handle at from seven to eight million pounds. Good weather at harvesting time would now assure excellent sizes. Prunes are ripening fast and some driers will probably start by September 10. M. J. Newhouse, former manager of the association, was present at the August meeting of the board of directors and gave a review of marketing conditions as they affect the sale of dried prunes. Mr. Newhouse has a splendid grasp of conditions all over the country and his talk was both interesting and instructive.

There is a general demand over the county for orchard boxes, indicating that most of the growers expect to harvest a very fine crop of prunes. The value of vetch as a cover crop is well understood and despite the high price of this seed large quantities are being planted. Vetch seed, as well as orchard boxes and lye, is being supplied members through the association.

BY THE TIME this magazine is received by the growers the first inspection of potato fields, listed for certification, will have been made. J. E. Currey, state seed inspector, is familiar with the county and makes quick work of visiting the fields. He seems to enjoy the

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confidence of the growers and is looked upon as a highly efficient representative of the State Department of Agriculture.

J. E. LARSON, formerly manager of the potato department of the organization, has been inspecting potato fields in the vicinity of Spokane, assisting the state seed inspector in this work.

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With the Poultry**EXHIBITING POULTRY**

POULTRY shows, whether held as exclusive exhibits of poultry or in connection with a state, county, or community fair, are not only of much interest to the public, but likewise play an important part in the development of the poultry industry. In order to win at a poultry show, fowls must conform to the standard requirements for the breed. Other things being equal, such birds are desirable both as producers and as breeders.

All white varieties of fowls, such as the White Leghorns and White Plymouth Rocks, and those having considerable white plumage, such as Columbian Plymouth Rocks and Light Brahmas, and even the buff varieties, should be washed in order to make the best possible showing when exhibited. The birds should be washed in a room or building where the temperature is from 70 to 80 degrees Fahrenheit and in a place that is free from drafts. The washing should be done in the morning so that the birds may have time enough to dry completely before night.

Get three or better, four tubs and arrange them on a bench or platform of convenient height. The water in the first tub is to be used for the actual washing and cleaning; the second, third, and fourth tubs are used for rinsing or removing all the soap. Each tub should contain water enough to cover the body of the bird when immersed.

Any pure white toilet soap may be used for washing. The water in the first two tubs should be heated to a temperature that will be comfortable to the hand, while the water in the third and fourth tubs may be slightly cooler. Soap the water in the first tub well, so there will be plenty of suds floating on the surface; next, wash the face, comb, wattles, shanks, and feet of the fowl by scrubbing these parts with a small nailbrush and plenty of soap and water. Before actually rubbing the feathers of the fowl be sure that the water has thoroughly penetrated all sections of the plumage so the bird is soaked to the skin. Next, apply the soap by working up with the fingers a good lather through the plumage. Rub the lather with the feathers instead of against them.

In rinsing the fowl be sure the water penetrates all parts of the plumage. After washing four or five fowls all water in the tubs should be changed. When rinsing is completed, blot the surface of the feathers with a turkish towel. Be careful not to rub the feathers. See that the bird is near a stove or source of heat that it may dry properly.

CANDLING IS SIMPLE

ALL eggs should be candled before they go to market. If you have no regular apparatus for candling it is not very difficult to make one. Any tinner can make one for you, or if you have, we will say a three-pound coffee can and a small lamp, after cutting the bottom in a half circle, raising it part way up, invert it over the lamp. That partially raised bottom allows the hot air to pass out. Near the bottom punch three or four holes, letting the air out, then on a line with the blaze in the lamp cut a hole a little smaller than it would take to pass an egg through. You may cut this circular if you can, or square if necessary. Then cut a round hole in a piece of leather smaller than the diameter of an egg, and tie it around the opening in the can. If your room is dark or nearly so, you can see through the egg by holding it up and turning it around against the opening in the leather. After a little practice you will soon learn the position the egg should be held.

You cannot, of course, tell whether the egg is fertile or infertile, but you can tell if a germ

has started to grow and then died, and you can plainly see blood spots if there are any. The blood spots in the egg are caused by the rupture of some small blood vessels during the growth of the egg. Fresh eggs, although containing blood spots, are just as wholesome as one without, but they will not keep. They will cause the egg to rot in about the same manner as a fertile egg that has been exposed to the heat and then chilled.

TRADE MARK FOR FRESH EGGS

ASMALL trade mark sticker is put on all eggs sold by members of the North Haledon Leghorn Club in Passaic County, N. J. This organization was formed as a result of a meeting of poultrymen of the community with the agricultural extension agent to discuss the development of the poultry industry in that section. Each member pays two cents per bird owned, 8,000 birds being pledged at the first meeting of the club. All members use the trade mark and guarantee eggs sold under it.

WHEN LAYING STOPS

AS A HEN stops laying there is a tendency for her to take on fat. This is noticeable in examining the pelvic bones, the two bones which can be felt as points on either side of the vent. When the hen is laying these bones become comparatively thin and flexible. When she is not laying they feel thicker and less flexible, due to the fat which has accumulated there. The spread of distance apart of these pelvic bones is also a valuable indication of whether or not the hen is laying. When laying they are wider apart than when not laying.

A POULTRYMAN is judged by his surroundings and the condition of his fowls.

FOWLS kept in an orchard will pay their way by killing injurious insects.

KEEP only pure-bred fowls. Mongrels never breed true nor can they be depended on to produce eggs.

MOVEABLE perches are a great advantage over fixed ones because they are easily removed and fresh ones substituted, if an extra set has been provided.

FOWLS consume large quantities of water; it should be clean and fresh and kept constantly before them.

HEAVY fall and winter egg production may be expected only from early-hatched, well-matured pullets. No practical value comes from forcing hens into early summer molt to make of them good fall layers.

THE molting of a fowl before September is usually an indication of poor production. Molting that is normal and not caused by outside influence offers one of the several reliable tests of the hen's ability as a producer.

THERE is considerable difference between sprouted oats and germinated oats. The latter go through a three-day or four-day sprouting process, but retain all their feeding value. The former have sprouts three or four inches long and furnish practically nothing but green feed.

EPSOM salts as a general tonic for poultry is fed in mash, in preference to drinking water, about eight ounces to each 100 birds each month. Twelve to 16 ounces to the same number of birds will serve as a laxative, but supplying it regularly will do away with the necessity for the latter. Epsom salts in drinking water may cause the birds to consume less and thus reduce their egg production.

Bees and Beekeeping

Edited by AMOS BURHANS

WHAT CONSTITUTES COLONY?

A PROSPEROUS colony of bees at the commencement of the swarming season consists of a queen, a few hundred drones and about 40,000 workers, says a California apiarist in the *Rural World*.

The queen is a perfectly developed female and the mother of the whole colony. In the height of the swarming and honey-gathering season and under favorable circumstances, it is said the queen will lay 2,000 or more eggs a day, equal in weight to her own body. She is distinguished from the other bees by her form, size and color, being larger and darker colored upon the back than either drone or worker in a colony of black bees, but much lighter in color in an Italian colony, the larger part of her body being a light golden yellow. She is, in both species, of slender structure, with comparatively short wings and a long, finely tapered abdomen. The beginner sometimes has difficulty in finding the queen in a black colony, but seldom in an Italian.

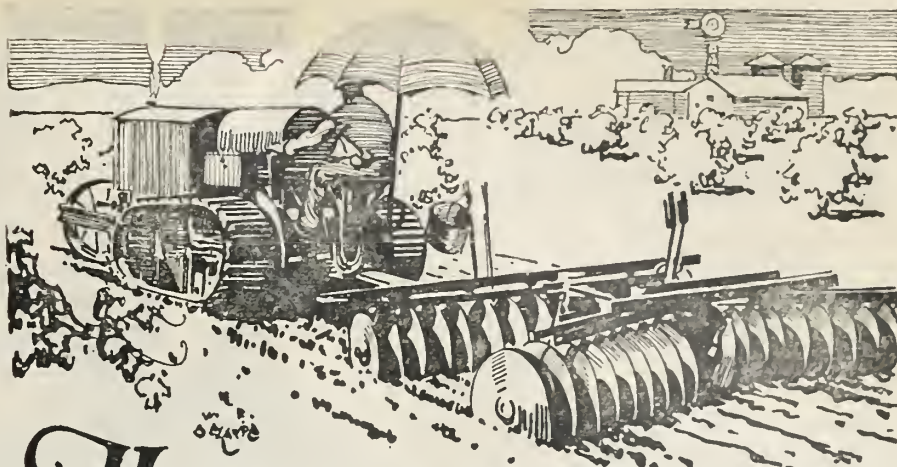
The queen never uses her sting except on a rival queen, so there need be no nervousness in picking her up, when necessary, which should always be by the wings. She usually lives from three to four years. If her death occurs when there are young worker brood or eggs in the hive, or if she is to leave the hive with a swarm, the workers construct large cells, supplying them with "royal jelly," the eggs, or larvae, thus treated then develop into queens and if from age or any other cause the egg-laying powers of the queen are impaired, the workers raise another to insure the population of the hive being kept up to full strength. In this case mother and daughter queens live peaceably together in the same hive; in no other case is there ever more than one queen permanently in the same colony.

The drone—The drones are more bulky, although somewhat shorter, than the queen; they are much larger than the workers. When flying their loud, boisterous hum is easily recognized. Being without a sac for carrying honey, or grooves on their thighs for pollen, they are physically unfit for performing any of the labors of the hive; and being destitute of a sting, they cannot assist in the defense of the stores against robbers. They appear to be called into existence at the approach of the swarming season to fertilize the young queens only. One curious thing about the drone is that he may go into any hives he cares to and no notice is taken of him; though a queen or worker entering any hive, but its own, is immediately killed or driven out.

The worker—Although the workers are the most diminutive in size, we are constrained to regard them as the most wonderful class in this marvelous family. Upon them devolves all the labor of collecting and defending the stores, building the comb, feeding and protecting the queen and brood, expelling the drones when they are no longer necessary to the well-being of the colony; in short, they rule and regulate the whole economy of the hive, performing all of its offices except those that have direct reference to the reproduction of the species. As regards the sex of the workers, modern observers agree in classing them as undeveloped females; they are incapable of fertilization by the drone, yet in a queenless colony one will sometimes be found laying eggs, which being unfertile, produce drones only.

BEES AND POLLINATION

THE report of the Agricultural Experiment Station of the University of California, for the years 1920-21, has the following to say of



How much heat should a tractor oil stand?

And how long should it "stand up" in that heat? Tractor oil *must* resist high operating temperatures if it is to keep your working equipment on the job.

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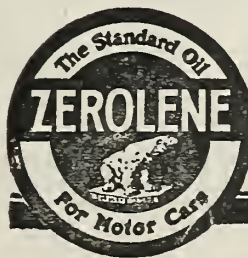
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Consult the Zerolene Correct Lubrication Chart for the correct grade for your tractor, truck or automobile.

STANDARD OIL COMPANY
(California)

"An analysis of Zerolene shows that it maintains always the right 'body' at all operating temperatures, following in close relation the decrease in bearing clearances caused by heat expansion."

—Board of Lubrication Engineers.



more power & speed ~
less friction and wear ~
thru *Correct Lubrication*

the value of bees in proper pollination of orchards:

"Observations in the Santa Clara valley in the spring of 1920 and 1921 showed that the recommendations, made by Hendrickson in connection with his pollination studies in 1916 and 1917, that bees be kept in orchards during the blooming period, have been generally adopted

by prune growers. A great majority of the prune growers in the Santa Clara valley now either have bees of their own or rent enough hives to supply their orchards. Bees are usually distributed at the rate of one hive to the acre. Before 1916, beekeepers often had to pay for the privilege of pasturing their bees in prune orchards during blooming time."

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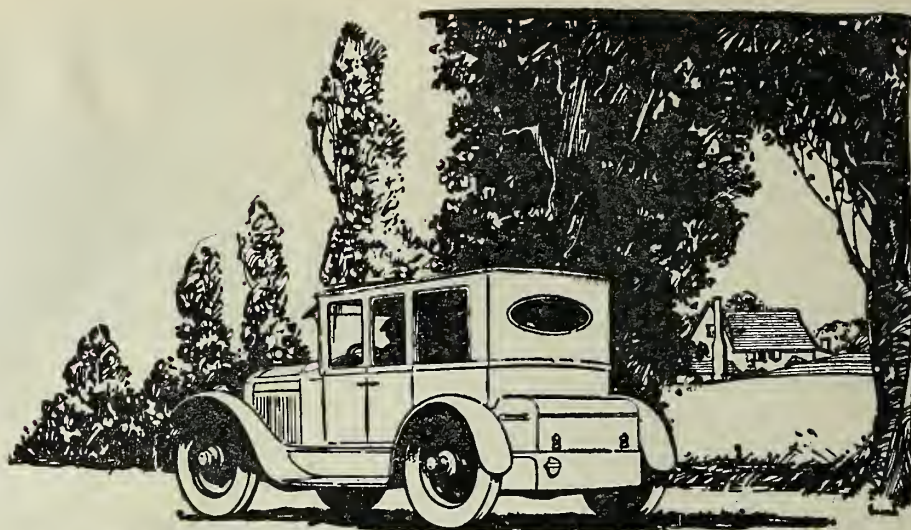
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